

# Rhodora

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### NOTES FROM THE HERBARIUM OF THE UNIVERSITY OF OKLAHOMA—I<sup>1</sup>

MILTON HOPKINS

THE GEOGRAPHIC RANGE OF *JUNIPERUS MEXICANA*.—The Arbuckle Mountains of south-central Oklahoma have long been of interest to students of geology and botany because of their limestone formations and because of the unusual plants which occur there. In reality they form merely a xeric limestone plateau raised above the floor of the prairies around them.<sup>2</sup> As Palmer<sup>3</sup> has so lucidly pointed out, their

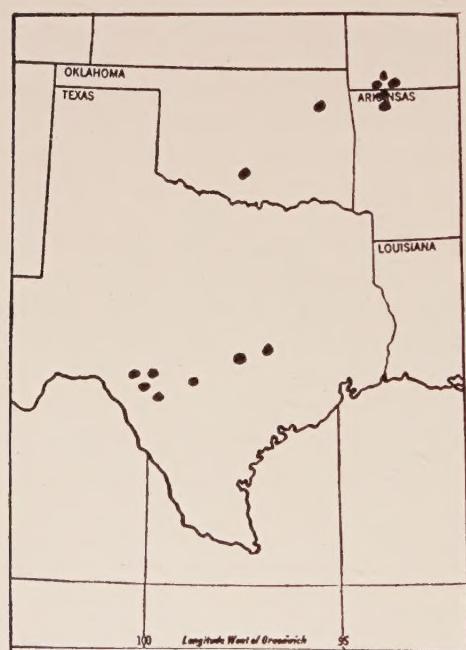
<sup>1</sup> Contribution from the Botanical Laboratory, University of Oklahoma, no. 50. The field-work of collecting the plants mentioned in this paper was made possible by a grant given to me by the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE through the OKLAHOMA ACADEMY OF SCIENCE.

<sup>2</sup> Palmer, E. J. "Notes on some Plants of Oklahoma" *Journ. Arnold Arboretum* xv. 132 (1934). Regarding the Arbuckle Mountains he says: "If the Wichita Mountains are such only by courtesy, it might be thought to put a strong tax upon the proprieties or at least upon scientific accuracy to designate the Arbuckle region as a mountainous one. The low rounded hills are underlaid largely by a hard Paleozoic limestone, through which has been thrust a mass of porphyritic intrusive rocks that now come to the surface over a small area. The limestone is exposed on many of the hill tops and slopes and as bluffs at some places along the Washita River which traverses the region. The soil is therefore decidedly alkaline over much of the area, although it is sandy and more acid in parts of the river valley as well as where the igneous rocks are exposed. The general aspect of the country with the outcrops of hard pure limestone eroded by occasional torrential rains that interrupt the usually dry climate, give it a strong resemblance to parts of the Edwards Plateau in central Texas, an impression which a study of the flora strongly confirms."

<sup>3</sup> I. c. Mr. Palmer also wrote me, in November 1937, as follows: "I found that most of the plants peculiar to the limestone hills of the Arbuckles were extensions of ranges from the Edwards Plateau of Texas, and that their incursion across the Red River and so far north is doubtless to be accounted for by the facts of the remarkable similarity in soil and physical conditions of the two regions. The only Juniper found in the Edwards Plateau—or at least in the typical parts of it—is *J. mexicana*, and it occurred to me that that was the species that should be found in the Arbuckles along with its consociates from further south. The case is really much stronger as to the similarity of the floras than I stated in my published paper, as a number of other Edwards Plateau plants have since turned up that I did not mention."

flora is as closely related to that of the Edwards Plateau of southwestern Texas as it is to any region within the political boundaries of Oklahoma, and consequently the occurrence there of the Mexican cedar is hardly to be considered unique, although its real identity in this state has long been confused. With Palmer's notes in my mind and with the discovery of "*J. Ashei*" on limestone bluffs in north-eastern Oklahoma,<sup>1</sup> I endeavored to ascertain the exact range of *J. mexicana* within the United States, and to attempt to explain the reason for its distribution as far north as the Ozark area. "Juniper trips" were made to the Arbuckle Mountains and to the Wichita Mountains,<sup>2</sup> which are a range of hills in south-western Oklahoma composed entirely of granitic formations, and herbarium specimens of cedars were borrowed from all of the larger botanical institutions.

Insofar as I have been able to learn, the plant has a range as indicated in MAP 1. Common on the Edwards Plateau of Texas, it is found locally through central and northern Texas, occurs on the Ar-



MAP 1. Range of *JUNIPERUS MEXICANA*  
(north of Mexico).

dictated in MAP 1. Common on the Edwards Plateau of Texas, it is found locally through central and northern Texas, occurs on the Ar-

<sup>1</sup> By Dr. Dwight M. Moore, of the University of Arkansas, who found the plant in Mayes County. It was described by Buchholz (Bot. Gaz. xc. 331. 1930) from north-western Arkansas and south-western Missouri, but Palmer and Steyermark (Ann. Mo. Bot. Gard. xxii. 454. 1935) have shown it to be synonymous with *J. mexicana*.

<sup>2</sup> The students at the University of Oklahoma became so "juniper conscious" that whenever field trips were scheduled in any department of the Biological Sciences the botanical collecting equipment was taxed by ardent young zoologists and ecologists eager to obtain cedars. Dr. A. O. Weese and his students in bio-ecology contributed materially to the one hundred or more specimens of *Juniperus* which found their way into the herbarium from various parts of the state.

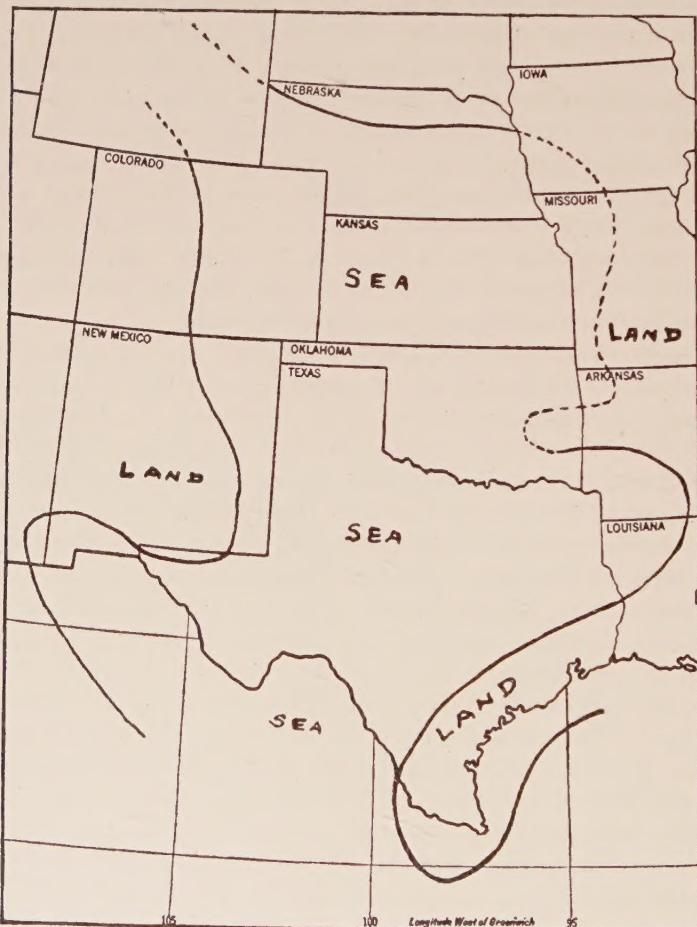
buckle limestones of Oklahoma where it is dominant, and then appears on limestone outcrops in northeastern Oklahoma and adjacent Arkansas and Missouri. In Oklahoma it covers the Arbuckles completely and is easily recognized in the field as distinct from *J. virginiana*<sup>1</sup> which is the only other cedar in the central part of the state. As one approaches the plateau from the prairies, the common red cedar is everywhere, but as soon as the slight ascent to Turner's Falls (in the "heart" of the Arbuckles) is made, *J. mexicana* is the only conifer to be found, and shares the region with such woody plants as *Rhus trilobata*, *Quercus marilandica* and *Q. stellata*. Its complete absence in the Wichitas, where *J. virginiana* abounds, is easily explained by the fact that there is no limestone in that area, except for a slight outcrop of the Arbuckle limestone several miles north, although no record of *J. mexicana* from that outcrop has come to my notice.

The Mexican cedar is definitely a calciphile, as every collector has observed. It appeared to me, therefore, that there might have been a former connection, now buried, between the Ozark, the Arbuckle and Texas stations, but geological evidence quickly convinced me that such a situation could hardly have been the case. A connection such as this could only have existed in the Cambrian, and no one can argue that coniferous plants occupied the earth at that time! Nor could I give credence to a theory that birds brought the seeds (as one of my students naïvely, but quite sincerely, pointed out) from the Edwards Plateau to the Arbuckles and the northeastern part of the state. Clearly, it seemed, there must have been an ancient seabed over the area, and with this hypothesis in mind, I conferred with my geological colleagues. They added information as follows. There was a Lower Cretaceous sea which extended from Mexico and Texas northward through Oklahoma, Kansas and Nebraska, and probably into northeastern Oklahoma and adjoining parts of Arkansas and Missouri (MAP 2).<sup>2</sup> This sea invaded the region under discussion in the latter part of Lower Cretaceous time but the area was definitely not available to plants until the recession of the waters, and some erosion, took place in the Eocene. If we assume that *J. mexicana* came into existence at that time, and inhabited the limestone soils of that seabed we

<sup>1</sup> *J. mexicana* differs from *J. virginiana* in the field in its larger fruits, greyish twigs, and almost invariably forked stem. It is usually a more dwarfed plant with a broader crown. Frequently it is decidedly bushy in aspect rather than tree-like.

<sup>2</sup> This map has been constructed by Dr. F. A. Melton, of the Department of Geology in the University of Oklahoma, to whom I am deeply indebted for his kind cooperation.

would have a continuous range for the plant through Mexico, Texas, Oklahoma and the southern Ozark region. In later Tertiary this seabed was eroded back so that at present it is found as the calcareous



MAP 2. Extent of LOWER CRETACEOUS SEA. Solid lines after Schuchert; dotted lines after Melton.

outcrops with which we are familiar—the Mexican Plateau, the Edwards Plateau and the limestone outcrops of north and central Texas and southern Oklahoma. These outcrops in an earlier stage of erosion, while more widespread than at present, made the connection

with the older limestones of the Arbuckle Mountains and with the Ozark region. Naturally, when this ancient sea-bottom was eroded the juniper could not exist on the sandy, clay or acid soils and hence was eradicated, excepting at those localities where the calcareous outcrops, of Cretaceous origin, remained. Such stations are today the localities for the plant. This theory is in perfect accordance with geological evidence and appears to explain, quite simply, the present range of the cedar. Much additional research needs to be done, especially to discover whether angiospermous plants follow the same distribution. Palmer informs us that many of the Arbuckle plants are found on the Edwards Plateau but he fails to cite a reason for this northern extension of the Texas flora. It is highly probable that when complete information is available we shall be able to postulate that many identical species of flowering plants occur in southwestern Texas, in the Arbuckles of Oklahoma and probably also in the Ozark area of Oklahoma, Arkansas and Missouri.

*SORGHASTRUM ELLIOTTII* Nash. McCURTAIN COUNTY: pine barrens and dry sterile woods, 6 miles southeast of Broken Bow, *Hopkins & Cross*, no. 2421.

In the course of a botanical survey of southeastern Oklahoma, a region of pine barrens and cypress swamps, this plant, among many others new to the members of our party, was found. Puzzled as to its identity, I sent a specimen to Mrs. Chase who most kindly named it for me and added that it represented a new addition to our flora. Having been found along the border states (Arkansas, Texas and Louisiana) its extension into Oklahoma merely emphasizes the fact that, although collections from this area have been made in the past, there is nothing like a complete knowledge of the flora. Additional new plants will, from time to time, be recorded in these papers.

*PASPALUM CILIATIFOLIUM* Michx. CADDO COUNTY: dry sandy bed of South Canadian River near Hinton, *Hopkins*, no. 2053.

Although primarily a Coastal Plain species, its occurrence in central Oklahoma can best be explained by the fact that it migrated up the river from Arkansas. The South Canadian flows into the Arkansas River not far from the state line and although this plant was found approximately 150 miles west of that point, such migrations are not unusual in our flora. The large rivers seldom possess much water except during the spring and fall and their broad sandy beds, often a mile wide, harbor numerous interesting plants, both

from the east and from the west. Mrs. Chase, again, has vouched for the determination, the collection being the first from within the state.

*CHLORIS CUCULLATA* Bisch. KIOWA COUNTY: dry sterile sandy hillside near Snyder, *Hopkins & Van Valkenburgh*, no. 858.

Although new to Oklahoma, it is not out of the limits of its natural range in Texas and New Mexico. I have specimens from Wilbarger County, Texas, on the border of the Red River, and as Kiowa County is not far from the state line, the occurrence of the plant on Oklahoma soil should evoke no interest save to emphasize again the paucity of our floristic knowledge. Collections from the southwestern counties have been so few that they can be numbered on the fingers of one hand.

*ARABIS DENTATA* (Torr.) T. & G. MUSKOGEE COUNTY: Hyde Park, *Mrs. E. L. Little*, no. 861.

Although collected in 1927, this specimen was labelled *Iodanthus pinnatifidus* (Michx.) Steud., and being filed in the folder containing plants of that genus, I did not chance upon it until very recently. It extends the known range of *A. dentata* approximately 100 miles southwestward and represents its first collection from Oklahoma. Inasmuch as E. L. Little, Jr., deposited most of his duplicates in this herbarium and seldom sent them elsewhere, I was unable to see this specimen when working on my monograph of *Arabis*.

*ARABIS GLABRA* (L.) Bernh.—A CORRECTION. In my recent paper, "Arabis in Eastern and Central North America," I incorrectly included this species in the floras of Missouri and Arkansas. Dr. Julian A. Steyermark, of the Field Museum, recently wrote me regarding this fact and requested that I again examine the specimens cited from these states to ascertain whether they were *A. glabra* or whether they belonged to another species. Accordingly, I requested a short loan of these plants and was soon convinced of my previous error. The specimen collected by A. S. Hitchcock from Jefferson Barracks, Missouri, on May 6th, 1890, and cited by me<sup>1</sup> as *A. glabra* is *A. pycnocarpa* Hopkins var. *adpressipilis* Hopkins, and the plant collected by H. E. Hasse at Little Rock, Arkansas in April, 1885, likewise cited as *A. glabra*, is *A. pycnocarpa* Hopkins var. *typica* Hopkins. Both specimens are in the late flowering stage and each superficially resembles *A. glabra*, but a thorough examination reveals that they do not belong to this species. *A. glabra*, therefore, does not occur either in Missouri or Arkansas, at least insofar as I am able to discern at the

<sup>1</sup> RHODORA XXXIX. 108 (1937).

present time. I am deeply grateful to Dr. Steyermark for pointing out this error.

ARABIS VIRIDIS IN OKLAHOMA AND WISCONSIN.—I originally reported only one station for this plant in Oklahoma,<sup>1</sup> but later collections have materially added to my previous knowledge. It abounds in the Wichita Mountains in Comanche County, and has also been found in Cherokee County in the eastern part of this state. Regarding it as a typical Alleghenian plant I was greatly puzzled at its appearance in a region so remote from its normal climatic environment. Also isolated in the Wichitas are several other eastern species, notably *Phryma leptostachya* and *Arisaema dracontium*. These latter two, as well as *Acer saccharum* and *Epilobium coloratum* (to be discussed in a following paragraph) occur in Caddo Canyon, a deep canyon in the open prairies near the township of Hinton, in the geographic center of the state and far out of their normal range. The sugar maple is famous at that spot, but the *Arabis* appears absent. The situation is, briefly, this. The presence of Alleghenian plants in the Wichitas and in Caddo Canyon, approximately 150 and 200 miles west of the normal limits of their ranges, indicates that they must, at some time in the past, have had an uninterrupted distribution from eastern Oklahoma (with its flora essentially Alleghenian) westward and that this distribution was altered due to geological or climatic factors. Anthropologists, climatologists and ecologists agree that about 4,000 B. C. there was a period of moist humid climate throughout Oklahoma and that many plants had such a continuous range from east to west. With the advent of a xeric climate, like that possessed today by the Wichitas and Caddo Canyons, those plants preferring a moist and cooler environment could not exist, except at those sheltered stations which they occupy at the present time, and hence were eradicated. Sears<sup>2</sup> and Clements<sup>3</sup> postulate this hypothesis, and because of the absence of any geological evidence which would otherwise explain the ranges of the plants under consideration, I can heartily concur. Theoretically one would anticipate *Arabis viridis* in the Arbuckles, 60 miles east and slightly more to the south, for this region of lime-

<sup>1</sup> I. c.

<sup>2</sup> Sears, P. B., "Climatic change as a factor in forest succession." *Journ. For.* xxxi. 934–942 (1933).

<sup>3</sup> Clements, F. E., "Origin of the desert climax and climate." *Essay in Geological Botany, in honor of William Albert Setchell*, ed. T. H. Goodspeed, 87–140 (1936). University of California Press.

stone hills most certainly should offer a veritable paradise for the plant. But the Arbuckles are considerably lower than the Wichitas, and have few sheltered localities where the plant could obtain sufficient moisture for its needs. Plant collection in that region has been exceedingly active, due to its close proximity to several institutions of collegiate rank, and students on field trips (in taxonomy, in ecology, in zoology and in geology, as well as in several other "ologies") have perused the area with considerable zeal. Surely the *Arabis* would have been found by this time, if it occurred there! The Wichitas, on the other hand, offer numerous shady cliffs in deep woods where the plant can grow successfully, though seldom on limestone, as the Wichitas are chiefly granitic, and in its present environment it must be considered as a climatic relic.

Dr. J. F. Hermann of the University of Michigan recently sent me some specimens of *Arabis* which he collected in the summer of 1937 from south-central Wisconsin. Among them was a plant which is clearly *A. viridis*, the first station for this species from that state. Its presence in the famous Driftless Area adds another plant to the lengthy list of relict occurring there. Before attempting to postulate reasons for its presence in that region I should like to see more material, as Hermann's plant is only in anthesis, and the inflorescence is extremely lax, whereas in typical *A. viridis* the inflorescence is of close, compact racemes. In other characters, however, the specimen is typically *A. viridis*. Under the citation of specimens in my paper it will, therefore, be necessary to insert the following:

WISCONSIN: northwest of Merrimack, Baraboo Range, Sauk County, *Hermann*, no. 8760.

LEPIDIUM CAMPESTRE (L.) R. Br. TULSA COUNTY: in an open fallow field near Tulsa, *Luckhardt*, no. 184.

Although undoubtedly occurring elsewhere in the state, this common introduced European weed has never been incorporated into any published flora or checklist of Oklahoma, nor does Stevens mention it in his lengthy manuscript flora. If common weeds are not to be found in our local herbaria what good are such collections to the farmer and garden enthusiast who wishes to know what particular plant is taking over his field or perennial border?

LESPEDEZA INTERMEDIA f. HAHNII (Blake) Hopkins. CLEVELAND COUNTY: in open prairies, 3 miles southeast of Norman, *Pauline Hoisington*, no. 60.

The first collection of the form with spreading pubescence. I have seen no other specimens of this plant although Miss Hoisington tells me that she found numerous individuals together with the typical form of the species. This bears out my original contention<sup>1</sup> that *f. Hahnii* should be treated as a form rather than as a variety as there is no geographic segregation between the two.

EPILOBIUM COLORATUM Muhl. CANADIAN COUNTY: rich moist soil at bottom of Devil's Canyon, near Hinton, E. L. Little Jr., no. 3996.

When Dr. Little sent this specimen to me for examination I was greatly surprised at its occurrence in central Oklahoma for it was supposed to reach its southwestern limit in Missouri and Kansas. This station extends its range approximately 150 miles southward. Little, who has adequately discussed the botany of Devil's Canyon,<sup>2</sup> considers the "relic flora [climate] hypothesis," mentioned above, the only plausible explanation for the presence of any eastern plants in the center of a prairie environment. Sugar maple (*Acer saccharum*) is found in four of the canyons peculiar to the region, its discovery in 1913 by G. W. Stevens being a noteworthy extension of range. Little, giving his explanation of the flora of these canyons says in part: "The most reasonable explanation is the relic flora hypothesis which has been used to account for disjunct patches of plants of various species driven south by ice sheets to be left there as glacial relicts and those of prairie species left farther eastward during periods of dry climate.—It is reasonable that during humid periods of various fluctuations in past climates the eastern deciduous forest may have migrated further west. If so, sugar maples may have had a continuous range westward to these canyons and beyond; with the advent of a drier climate, plants of the more mesophytic species would die out at their limits and the limits of the ranges would shift eastward." Such a postulation for the presence of *Acer saccharum* in these canyons seems quite plausible and I think the same argument must hold for the *Epilobium*. If wind carried the seeds, surely intermediate stations between those of Kansas and Missouri would be found. Stevens, whose familiarity with the flora of northern and north-central Oklahoma was greater than that of any other local botanist of his time, fails to record it at

<sup>1</sup> RHODORA XXXVII, 264–266 (1935).

<sup>2</sup> Little, E. L., Jr. "The vegetation of Caddo Canyons, Oklahoma," unpublished manuscript in the Library of the University of Oklahoma (1937). [There are four large canyons, Devil's being the largest and most unique.]

any locality within the state. I also have collected in that interesting spot on several occasions but it has eluded me, although I made one trip with the specific intent of finding it! Except for the one specimen collected by Little, and deposited in this herbarium, no other record for it seems extant.

ASTER SPINOSUS Benth. CLEVELAND COUNTY: in sandy meadow on margin of bank of South Canadian River near Norman, *Charles Smith*, no. 701.

This interesting plant of New Mexico and Texas was found in September, 1937. I went with Mr. Smith to his station and found several large clumps which appeared to be several years old and which were apparently brought in by one of the annual floods which are characteristic of the South Canadian. No other record of its appearance in Oklahoma, or at any other locality so far east, is familiar to me.

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## NOTEWORTHY PLANTS OF SOUTHEASTERN VIRGINIA

M. L. FERNALD

(Continued from p. 424)

RUBUS OCCIDENTALIS L. SUSSEX COUNTY: rich deciduous woods south of Stony Creek, no. 8303. Noted locally eastward to SURRY COUNTY.

\*R. PHENICOLASIUS Maxim. SOUTHAMPTON COUNTY: alluvial woods, bottomland of Three Creek, Drewryville, no. 7880.

\*RUBUS (CUNEIFOLII) **Longii**, sp. nov. (TAB. 521 et 522), arcuato-adscendens vel deinde depressus; turionibus 6 dm. altis pilosis glaberratisque aculeis 4-6 mm. longis basi dilatatis rectis numerosis armatis; foliis primariis 3-foliolatis longe petiolatis, petiolis cinereo-villosis remote armatis, foliolis imis 5-7 cm. longis 3.5-5 cm. latis oblique rhomboideo-ovalibus lobatis vel divisis subtus densissime cinereo-tomentosis supra dense pilosis abrupte acuminatis grosse duplicito-serratis basi subcuneatis integrisque; foliolis terminalibus elliptico-ovatis vel obovatis basi rotundatis; caulinis fructiferis valde arcuatis; foliis trifoliolatis, foliolis ellipticis 2.5-3.5 cm. longis subtus cinereo-pilosis anguste serratis; inflorescentia corymbiformi basi foliosa; rhachibus villoso-tomentosis; pedicellis valde adscendentibus villoso-tomentosis plus minusve armatis; sepalis oblongis tomentosis apice breviter caudatis; fructibus subglobosis 1.7-2 cm. diametro.—Sussex County, VIRGINIA: bushy margin of a peaty and argillaceous swale north of Littleton, June 10, 1938, *Fernald & Long*, no. 8298 (TYPE in Herb. Gray; ISOTYPE in Herb. Phil. Acad.).



Photo. H. G. Fernald.

RUBUS LONGII: fruiting branch from TYPE,  $\times 1$ .

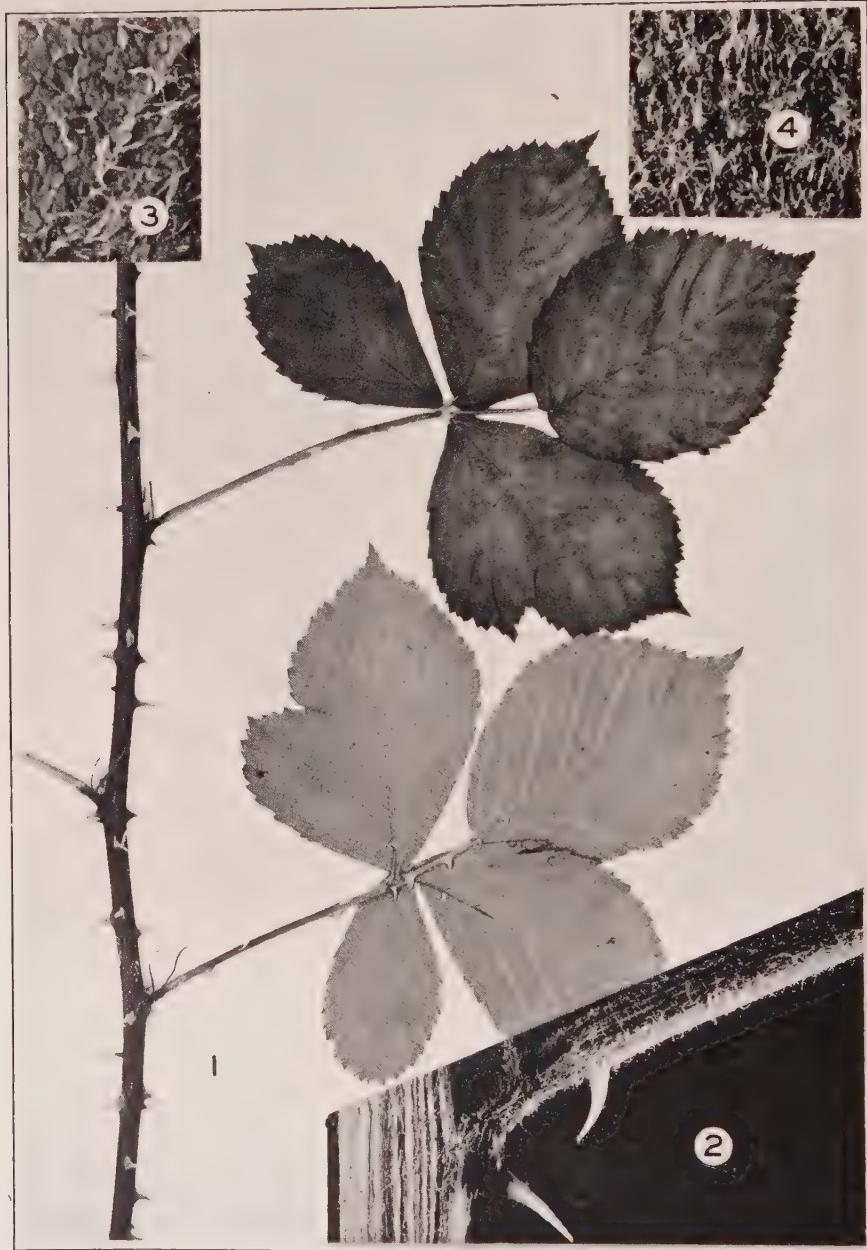


Photo. H. G. Fernald.

RUBUS LONGII: FIG. 1, portion of primocane,  $\times \frac{3}{4}$ ; FIG. 2, base of petiole,  $\times 4$ ; FIG. 3, upper surface of leaf,  $\times 10$ ; FIG. 4, lower surface of leaf,  $\times 10$ .

*Rubus Longii* is so distinctive a blackberry that it at once won the enthusiasm of my companion, who, ordinarily, was as willing as I to pass the average run of *Rubus* (except to test the fruits, in *R. Longii* of superior quality). In its primocanes, with their leaves chiefly 3-foliolate, it is apparently a member of the *Cuneifolii*. From the stiffly ascending *R. cuneifolius* Pursh, which has smaller subtruncate to round-tipped leaflets white-pannose beneath, it differs at once in the larger abruptly acuminate leaflets with a longer cinereous tomentum beneath, and its corymbs have acuminate-tipped leaflets and fewer prickles. Furthermore the fruiting canes are low-arching to depressed. Bailey, *Gentes Herbarum*, ii. fasc. vi. (1932), recognizes, besides *R. cuneifolius*, three species of the *Cuneifolii*. *R. audax* Bailey, a "diffuse open tall harsh crabbed briar" of southern Florida, has the leaflets of the floricanes strongly rounded, instead of acuminate. *R. probabilis* Bailey, which occurs in eastern Virginia, is a taller shrub with leaflets of the glabrous primocanes oblong, often in 5's, and glabrous (instead of pilose) above, the inflorescence strongly armed. *R. inferior* Bailey, a prostrate or diffuse plant of Florida, has narrower and smaller leaflets without acumination and strongly armed pedicels.

If *Rubus Longii* be sought in the *Arguti* it might be placed near *R. frondosus* Bigel. or with *R. multispinus* Blanchard. Both of these are much coarser and larger-leaved plants, with glabrous primocanes bearing chiefly 5-foliolate leaves with glabrous petioles; *R. Longii*, a much smaller plant, having pilose primocanes with mostly 3-foliolate leaves strongly pilose above, cinereous-tomentulose beneath and on densely villous petioles.

The type-station of *Rubus Longii* is our only locality in Virginia for *Polygala ramosa* and *Acerates floridana*. See p. 398.

ALCHEMILLA MICROCARPA Boiss. & Reut. NORFOLK COUNTY: near Norfolk, May 15, 1832, Wm. Darlington. PRINCESS ANNE COUNTY: sandy open ground near beach, Virginia Beach, May 17, 1912, B. L. Robinson, no. 325. HENRICO COUNTY: "Hollywood," Richmond, May 5, 1894, J. R. Churchill. BEDFORD COUNTY: without stated locality, June 3, 1871, A. H. Curtiss.

This is the little annual (of § *Aphanes*) which has passed in eastern America as *Alchemilla arvensis* (L.) Scop. It is abundantly distinct from the European *A. arvensis* in its small leaves and minute flowers. Rydberg, taking it for an endemic native of the South, described it as

*Aphanes australis* Rydberg in N. Am. Fl. xxii. 380 (1908); but it perfectly matches the southern European (of Spain, Sardinia, etc.) *Alchemilla microcarpa* Boissier & Reuter. It was doubtless early introduced into the South and such habitats noted on labels, as "low pasture," "door-yard," etc., definitely suggest that it is an introduced weed. Dr. Lily M. Perry kindly calls my attention to an earlier reduction of *Aphanes australis* Rydb. to *Alchemilla microcarpa* by Rothmaler in Fedde, Report. xxxviii. 40 (1935).

**R. ROSA CAROLINA** L. (*R. humilis* Marsh.). Seen by us only rarely on the Coastal Plain of Virginia. **DINWIDDIE COUNTY:** border of swampy woods east of Burgess, no. 8304. Noted in **GREENSVILLE COUNTY.**

**R. CAROLINA**, var. **GLANDULOSA** (Crépin) Farwell. Seen by us only once on the Coastal Plain of Virginia. **GREENSVILLE COUNTY:** rich deciduous woods by Metcalf Branch, east of Emporia, no. 8305. See p. 380.

**CROTALARIA ANGULATA** Mill. (*C. rotundifolia* (Walt.) Poir.). To the stations in Nansemond and Isle of Wight Counties add two from **SOUTHAMPTON COUNTY:** border of sandy woods about 3 miles east of Drewryville, no. 7455; dry sandy pine and oak woods about 7 miles south of Franklin, no. 8312.

I am indebted to Dr. H. A. Senn for calling my attention to the earliest name for the species.

**C. PURSHII** DC. To the stations already reported add two in **SOUTHAMPTON COUNTY:** border of sandy woods, Hart's Bridge, no. 8313, exceptionally large plants, with stems up to 4.5 dm. high; border of sandy woods, Mars Hill Church, no. 9063, plants 6 dm. high! See p. 378.

\***C. SPECTABILIS** Roth (*C. Retzii* Hitchc.). **SUSSEX COUNTY:** dry field, Homeville, no. 7456. See p. 372.

\***WISTERIA SINENSIS** Sweet. **SUSSEX COUNTY:** woods, south of Littleton, thoroughly naturalized, climbing high over trees, no. 7883 (misidentified as *W. floribunda*).

**ASTRAGALUS CANADENSIS** L. Extending down the James to **SURRY COUNTY:** rich alluvial woods and thicket back of sand-beach of James River, Claremont Wharf, no. 8317; similar habitat, below Sunken Meadow Beach, no. 8318. See p. 383.

**DESMODIUM PAUCIFLORUM** (Nutt.) DC. **SOUTHAMPTON COUNTY:** alluvial woods, bottomland of Meherrin River, near Haley's Bridge, no. 8319. **SUSSEX COUNTY:** alluvial woods, upper terrace of Nottoway River, southwest of Burt, no. 7462. **SURRY COUNTY:** dry woods northwest of Surry, no. 8726. Apparently general in alluvium.

**D. TENUIFOLIUM** T. & G. To the first Virginian station (in Isle of Wight County) add from **DINWIDDIE COUNTY:** sphagnous bog about

1 mile northeast of Burgess, no. 7473. SUSSEX COUNTY: sphagnous depression just northwest of Wakefield, no. 8730. GREENSVILLE COUNTY: sphagnous bog about 1 mile northwest of Dahlia, no. 8731.

\**DESMODIUM CILIARE* (Muhl.) DC., var. *lancifolium* Fernald & Schubert, var. nov. (TAB. 523), foliolis lanceolatis apice attenuatis, terminalibus 2–3.3 cm. longis ca. 1 cm. latis.—VIRGINIA: dry sand, pine barren about 7 miles south of Franklin, Southampton County, September 7 and 8, 1937, Fernald & Long, no. 7474 (TYPE in Gray Herb., ISOTYPE in Herb. Phil. Acad.). See p. 366.

With the characteristic fruit of *Desmodium ciliare* (*D. obtusum* of authors), which has oval to round-ovate obtuse leaflets. As shown by Urban and subsequently by Blake (Bot. Gaz. lxxviii. 276) the type of *Hedysarum ciliare* Muhl. belongs to the species which has been passing as *Desmodium obtusum* (Muhl.) DC., while the type of *H. obtusum* Muhl. is not conspecific with it.

\**LESPEDAZA CUNEATA* G. Don. Roadsides and borders of woods, rather general. The following collections have been made: DINWIDDIE COUNTY: roadside gutter, border of swampy woods northwest of Carson, no. 7478. PRINCE GEORGE COUNTY: argillaceous roadside near Gary Church, no. 7479. SURRY COUNTY: roadside, Claremont Wharf, no. 8320.

Tall, erect annual from Asia, with white corolla, the standard with a blue-purple band. Originally introduced as a field-crop.

*LESPEDAZA ACUTICARPA* Mackenzie & Bush. To the station in Princess Anne County (first from Atlantic slope) reported by Fernald & Griscom, RHODORA, xxxvii. 167 (1935) add from NORTHAMPTON COUNTY: dry pine woods near Capeville, *F. L. & F.*, no. 5333.

\**LESPEDAZA CAPITATA* Michx., var. *hirtiformis*, var. nov. (TAB. 524), caule dense velutino; foliolis late elliptico-ovalibus vel obovatis utrinque sericeis.—VIRGINIA: border of dry woods, Zion's Church, northwest of Whaleyville, Nansemond County, September 17, 1937, Fernald & Long, no. 7481 (TYPE in Gray Herb., ISOTYPE in Herb. Phil. Acad.). PLATE 524, X 2/5. See p. 367.

*Lespedeza capitata*, with its short peduncles, densely capitate-spicate inflorescences and long calyx, throughout its broad range usually has narrowly oblong to narrowly lanceolate or linear leaflets. We have never before met it on the Coastal Plain of Virginia, except in the narrowest-leaved extreme, var. *longifolia* (DC.) T. & G. (with linear leaflets). Var. *hirtiformis* in its very broad rounded leaflets closely simulates *L. hirta* (L.) Hornem.; but its short peduncles, capitate spikes and large calyx place it clearly with *L. capitata*. The

colony near Whaleyville (a few miles west of the Great Dismal Swamp) is extensive.

\**STYLOSANTHES RIPARIA* Kearney, var. *setifera*, var. nov., a forma typica recedit caulibus plus minusve hirsuto-setiferis, setis horizontaliter divergentibus 1-2 mm. longis; corollis lacteis.—**VIRGINIA:** dry thicket by Ivor Road, east of Courtland, June 10, 1938, *Fernald & Long*, no. 8321 (TYPE in Gray Herb.; isotypes in Herb. Phil. Acad. and elsewhere).

When we first detected this white-flowered plant, forming a colony adjacent to typical yellow- or orange-flowered *Stylosanthes riparia*, we took it to be an albino. Upon examining the specimens as they went into press it was found that their stems bore stiff setiform divergent hairs suggestive of the pubescence of *S. biflora* (L.) BSP., var. *hispidissima* (Michx.) Pollard & Ball. Accordingly, we returned to the station, expecting to find the yellow-flowered plant hispid. It proved to be perfectly typical, however, in having the stems only minutely pilose or puberulent; but all the white-flowered plants had hispid stems. The plant cannot, therefore, be treated merely as an albino.

A small colony of a true albino form of the species was found in July; this is

\**S. RIPARIA* Kearney, forma *ochroleuca*, f. nov., a forma typica recedit petalis ochroleucis.—**VIRGINIA:** a few plants among typical orange-flowered ones, dry border of woods about 1 mile north of Skipper's, Greensville County, July 15, 1938, *Fernald & Long*, no. 8732 (TYPE in Herb. Gray; ISOTYPE in Herb. Phil. Acad.).

*VICIA CAROLINIANA* Walt. Apparently local on the Coastal Plain. **GREENSVILLE COUNTY:** dry rich woods near Metcalf Branch, east of Emporia, no. 7886. **SOUTHAMPTON COUNTY:** dry woods, thickets and clearings along Three Creek, Drewryville, no. 5813.

*LATHYRUS HIRSUTUS* L. To the first reported Virginian station (in Henrico County) add from **SURRY COUNTY:** roadside thicket, Claremont Wharf, no. 8324.

*PHASEOLUS POLYSTACHYUS* (L.) BSP. Rare on the Coastal Plain. **PRINCE GEORGE COUNTY:** dry wooded slopes of gullies near Powell's Creek, Garysville, no. 8325. **SOUTHAMPTON COUNTY:** dry sandy open pine and oak woods 6 to 7 miles south of Franklin, nos. 8326, 8736. **DINWIDDIE COUNTY:** borders of dry pine and oak woods, south of Burgess Station, no. 9080. See p. 380.

Very often *Phaseolus polystachyus* has forking racemes or even panicles. Our material closely matches the Clayton specimen (type of the species) in having them quite simple.



Photo. H. G. Fernald

DESMODIUM CILIARE, var. LANCIFOLIUM,  $\times \frac{1}{2}$ .



Photo, H. G. Fernald.

LESPEDEZA CAPITATA, var. HIRTIFORMIS: TYPE,  $\times \frac{2}{5}$ .

**POLYGALA HARPERI** Small. To the first Virginian stations (in Sussex County) add stations from three other counties. **NANSEMOND COUNTY**: damp sandy field north of Factory Hill, *F.* & *L.* in *Plantae Exsiccatae Grayanae* (not yet issued). **GREENSVILLE COUNTY**: peaty and argillaceous clearing about 4 miles southeast of Emporia, no. 4336. **SURRY COUNTY**: border of oak woods southwest of Surry, no. 8752.

\***P. CRUCIATA** L., var. **CUSPIDATA** Wood (Var. *ramosior* Nash; *P. cuspidata* Hook.; *P. ramosior* (Nash) Small). **SUSSEX COUNTY**: moist pinelands just southeast of Waverly, no. 7501. **SOUTHAMPTON COUNTY**: clearing in wet argillaceous pineland northeast of Courtland, no. 7503. Other collections transitional. See p. 366.

**P. VERTICILLATA** L., *sensu* Fernald in **RHODORA**, xl. 337, pl. 501 (1938). *P. Pretzii* Pennell. **GREENSVILLE COUNTY**: peaty and argillaceous clearing about 4 miles southeast of Emporia, no. 8754. See p. 377.

In his study of the group Pennell (*Bartonia*, no. 13: 12–15 (1931)) cites the prevailingly inland *Polygala Pretzii* (true *P. verticillata* L., as shown in **RHODORA**, l. c.) from no Coastal Plain station south of New Jersey. Our plant is thoroughly typical, although it passes by free transitions into the next, which in turn passes into the newly described variety.

**P. VERTICILLATA** L., var. **AMBIGUA** (Nutt.) Wood (*P. ambigua* Nutt.). **GREENSVILLE COUNTY**: peaty and argillaceous clearing about 4 miles southeast of Emporia, nos. 8333, 8755. **PRINCE GEORGE COUNTY**: dry sandy woods and clearings about 3 miles southeast of Petersburg, at head of Poo Run, no. 6650. **DINWIDDIE COUNTY**: clearings and borders of pine and oak woods south of Burgess Station, no. 9086. See p. 377.

In his study of the group above referred to Pennell (p. 16) cites this commonly inland variety (as *P. ambigua* Nutt.) from no Coastal Plain stations south of New Jersey, its southeastern stations indicated as close to the Fall Line. Our three stations are on the Coastal Plain of southeastern Virginia. Several specimens in the Gray Herbarium, determined by Pennell as *P. ambigua*, from Missouri, Arkansas and Oklahoma, depart conspicuously from it in their very large white wings. Attention was called to this undescribed plant by our finding it also in Greensville County, Virginia. This is

\***P. VERTICILLATA** L., var. **dolichoptera**, var. nov. (TAB. 525, FIG. 1 et 2), var. *ambiguae* similis; floribus lacteis; alis ellipticis 2–2.6 mm. longis quam capsula valde longioribus.—**Virginia**, Missouri, Arkansas and Oklahoma. **VIRGINIA**: peaty and argillaceous clearing about 4 miles southeast of Emporia, Greensville County, June 18, 1938, *Fernald & Long*, no. 8334 (TYPE in Herb. Gray; ISOTYPES in Herb.

Phil. Acad. and elsewhere), July 14, 1938, *Fernald & Long*, no. 8756, also in *Plantae Exsiccatae Grayanae* not yet issued. MISSOURI: Green County, July 23, 1897, *J. W. Blankinship*; woods, Eagle Rock, August 7, 1905, *Bush*, no. 3159; rocky woods, Noel, August 7, 1908, *Bush*, no. 5057. ARKANSAS: dry hills, southern Arkansas, *F. L. Harvey*, no. 101; dry and rocky floor of Maumel Mt., Pulaski County, October 16, 1931, *Delziec Demaree*, no. 8580; open woods, North Mt., Hot Springs, September 6, 1935, *F. J. Scully*, no. 266. OKLAHOMA: rocky creek-bank, Page, LaFlore County, June 20, 1914, *O. W. Blakley* (*G. W. Stevens*, no. 1437). See p. 377.

Var. *dolichoptera* has the habit of *Polygala verticillata*, var. *ambigua* but its flowers (FIGS. 3 and 4) are much larger, var. *ambigua* having the wings only 1–1.5 mm. long and about equaling the capsule (FIG. 4). The bright- or milk-white flowers of var. *dolichoptera* are striking, though not wholly distinctive, for they show a tendency in age to change to pinkish. The plants are tall for any form of *P. verticillata*, the larger loosely bushy-branched plants of our no. 8756 being fully 4 dm. high.

*STILLINGIA SYLVATICA* L. SOUTHAMPTON COUNTY: dry open sandy pine and oak woods 6 to 7 miles south of Franklin, locally abundant, nos. 7508, 8337, 8338. See p. 380.

*EUONYMUS ATROPURPUREUS* Jacq. SURRY COUNTY: rich calcareous woods at head of Sunken Meadow Creek, south of Claremont, no. 8357. See p. 382.

\**CELASTRUS ORBICULATUS* Thunb. CAROLINE COUNTY: thoroughly naturalized in fence-row south of Milford, no. 7524. See p. 365.

An Asiatic species, becoming naturalized as far north as southeastern New York.

*STAPHYLEA TRIFOLIA* L. Extending locally into the Coastal Plain. SURRY COUNTY: rich wooded gullies along James River, below Sunken Meadow Beach, no. 8358 (trunks up to 7.5 m. high and 7 cm. in diameter). SUSSEX COUNTY: alluvial woods, Nottoway River, southwest of Lambs, no. 7525. GREENSVILLE COUNTY: rich deciduous woods along Three Creek, north of Emporia, no. 8359. See p. 382.

*ACER FLORIDANUM* Pax. GREENSVILLE COUNTY: abundant in rich deciduous woods by Metcalf Branch, east of Emporia, no. 8360. AMELIA COUNTY: alluvial woods along Deep Creek, about 1 mile southeast of Beaver Pond, no. 9096 (station shown us by Mr. John B. Lewis). See p. 380.

Small (Man.) says "Fla. to La. and S. C. Naturalized in N. C. Reported from Va." At our station it is the dominating tree in an extensive area of undisturbed (except for cutting) forest, with a striking group of local natives: *Sciria oligantha*, *Carex flaccosperma*,

*Silene virginica*, *Clematis ochroleuca*, *Rosa carolina* var. *glandulosa*, *Aesculus discolor*, *Phlox nivalis*, *Phacelia dubia* and *Coreopsis auriculata*, while the wooded bottomland close by supports an extensive area of isolated *Glyceria arkansana*. Sargent (Man. Trees, ed. 2) reports *Acer floridanum* from near McKenney, Dinwiddie County; and Mr. Lewis told us of a second station in Amelia County.

**AESCRULUS DISCOLOR** Pursh. GREENSVILLE COUNTY: dry rich woods and bottomland-woods by Metcalf Branch, east of Emporia, nos. 7895, 7894. See p. 374.

These flowering specimens confirm the identification in RHODORA, xxxix. 352 and 435. The station was there erroneously given as Caney Branch (which crosses the Courtland road to the east of Metcalf Branch).

\***VITIS CINEREA** Engelm. GREENSVILLE COUNTY: alluvial woods, bottomland of Meherrin River, near Haley's Bridge, no. 8363. See p. 375.

Apparently the first on the Atlantic slope from north of Florida, although the rufescent var. *floridana* Munson (*V. Simpsoni* Munson; see RHODORA, xxxviii. 426), cited by Small only from Florida and by Bailey as extending north into Georgia, is abundant on practically all bottomlands.

**V. VULPINIA** L. Following the James at least to SURRY COUNTY: rich alluvial woods and thicket back of sand-beach of James River, Claremont Wharf, no. 8361; seen also at Eastover. See p. 375.

**TILIA MICHAUXII** Nutt. SURRY COUNTY: rich woods on fossiliferous sandy slopes of gullies near Claremont Wharf, no. 7897; rich woods and thickets back of sand-beach of James River, Eastover, no. 8763. See p. 375.

A species of the interior, Sargent (Man. ed. 2) saying "southward . . . along the Appalachian Mountains." Leaves cordate-ovate, loosely pubescent beneath.

**T. HETEROPHYLLA** Vent. SURRY COUNTY: with the last, no. 8365. See p. 375.

Tall tree; leaves strongly oblique, permanently white-felted beneath. Also an upland tree, Sargent, l. c., giving the northeastern areas of its range: "White Sulphur Springs, Greenbrier County, West Virginia; Piedmont region of North and South Carolina and Georgia." The tree is not, however, new to Virginia. Several collections from the western half of the state are represented in the Gray Herbarium.

\**MALVA ROTUNDIFOLIA* L., not of most American authors (*M. pusilla* With., *M. borealis* Wallm.). See C. V. Morton, RHODORA, xxxix. 99 (1937). DINWIDDIE COUNTY: waste place, Petersburg, no. 8366.

*HYPERICUM PROLIFICUM* L. SURRY COUNTY: rich woods and thicket back of the sand-beach of the James River, below Sunken Meadow Beach, no. 8368. PRINCE GEORGE COUNTY: locally very abundant in low open woods, Flowerdew Hundred, no. 8769, shrubs up to 2.5 m. high. CHARLES CITY COUNTY: alluvial woods by James river, Harrison Point, no. 9100. See p. 382.

An inland and upland species apparently not recorded from the Coastal Plain.

*H. NUDIFLORUM* Michx. Reported, RHODORA, xxxvii. 432 (from Princess Anne County), as new to Virginia. Now known as a scattered shrub nearly to the Fall Line, in NANSEMOND, SUSSEX and DINWIDDIE COUNTIES (many nos.).

\**H. ADPRESSUM* Bart. SUSSEX COUNTY: border of a wooded swamp north of Stony Creek, nos. 8367, 8767.

First in the Gray Herbarium from between Delaware and North Carolina.

*H. DENTICULATUM* Walt., var. *OVALIFOLIUM* (Britton) Blake. To the first Virginian station (in Sussex County), reported in RHODORA, xxxix. 337 and 435 add the following. ISLE OF WIGHT COUNTY: sandy and peaty border of Cat Pond, south of Benns Church, no. 7530. YORK COUNTY: borders of small pond-holes in woods, northwest of Grafton, no. 7531. See p. 371.

*H. SETOSUM* L. SUSSEX COUNTY: ditch bordering dry argillaceous pinelands about 4 miles northwest of Waverly, no. 7532; moist pine-lands just southeast of Waverly, no. 7533, abundant. GREENSVILLE COUNTY: peaty openings bordering wooded swamp north of Skipper's, no. 9101. See p. 366.

*VIOLA AFFINIS* LeConte, var. *CHALCOSPERMA* (Brainerd) Griscom. To the first Virginian record (from Southampton County) should be added one from NANSEMOND COUNTY: alluvial wooded bottomland of Somerton Creek, Factory Hill, no. 8371.

\**V. LANGLOISII* Greene, var. *PEDATILOBA* Brainerd. SOUTHAMPTON COUNTY: dry wooded slopes by Three Creek, Drewryville, no. 7908. See p. 375.

Seemingly quite like the original material from Louisiana.

*V. ESCULENTA* Ell. To the one reported Virginian station (in Norfolk County) add one in GREENSVILLE COUNTY: rich woods by Three Creek, 2 miles north of Emporia, no. 7990. See p. 375.

\**V. EMARGINATA* (Nutt.) LeConte, var. *ACUTILOBA* Brainerd. SUSSEX COUNTY: dry pine woods east of Burt, no. 7541, quite like

the original material from the District of Columbia. JAMES CITY COUNTY: damp clearing in rich woods south of Hotwater, no. 8780.

V. LANCEOLATA L. SUSSEX COUNTY: sandy woods near Mars Hill Church, no. 7898.

Apparently rare on the Inner Coastal Plain, though common in eastern Princess Anne County and on the Eastern Shore. Grimes did not find it on the Peninsula of Virginia.

V. LANCEOLATA, var. VITTATA (Greene) Weath. & Griseb. To the first Virginian station (in Sussex County) reported add one from ISLE OF WIGHT COUNTY: sandy and peaty border of Cat Pond, south of Benns Church, no. 7543.

VIOLA KITAIBELIANA Roem. & Schultes, var. **Rafinesquii** (Greene), comb. nov. *V. bicolor* Pursh, Fl. Am. Sept. i. 175 (1814), not Gilibert (1781). *V. tenella* Muhl. Cat. 26 (1813) *nomen subnudum*; Eaton, Man. ed. 2: 496 (1818); Raf. in Am. Mo. Mag. iv. 191 (1819); not Poir. (1810). *V. Rafinesquii* Greene, Pittonia, iv. 9 (1899). PLATE 526, FIGS. 1, 2, 4 and 7.

*Viola Rafinesquii* is the one American representative of the prevailingly Eurasian and north African pansies which has been sometimes considered indigenous with us. Its behavior, however, is so decidedly that of early-established weeds of European, north African or Asiatic origin that its claims to being indigenous in the eastern United States seem no better than those of other weedy species, like *Poa compressa*, *Allium vineale*, *Arenaria serpyllifolia*, *Ranunculus bulbosus*, *Duchesnea indica*, *Potentilla argentea*, *Vicia angustifolia*, *Rhamnus cathartica*, *Hypericum perforatum*, *Ligustrum vulgare*, *Thymus Serpyllum*, *Solanum Dulcamara*, *Linaria vulgaris*, *Veronica arvensis* and *serpyllifolia*, *Lonicera japonica*, *Artemisia vulgaris*, *Cirsium lanceolatum*, and hundreds of others brought to us from abroad and now thoroughly at home in fields, recent clearings, pastures, open second- to fourth-growth woods near farms, or other altered habitats where they associate with and often crowd out the strictly indigenous plants.

The first record of the American plant was, apparently, by Gronovius, based upon Clayton's collection, in 1739: his "VIOLA caulinibus & pedunculis quadratis, stipulis oblongis pinnato-dentatis, foliis ovato-oblongis crenatis. Flore est penitus albo. Clayt. n. 527," the identity established by Asa Gray who noted opposite the description in 1839 "*tenella* Pursh" (of course meaning *V. tenella* Muhl. as validated by Eaton, or *V. bicolor* Pursh which was separately named *V. tenella* by Rafinesque in 1819). *V. Rafinesquii* was, then, in Virginia

two centuries ago. It is now a ubiquitous weed especially of roadsides, or in lawns, worn-out fields, pastures and pastured woodlands in many areas from New Jersey and eastern Pennsylvania to Georgia; also occasional to common from Connecticut to Nebraska, south to the Gulf States. If in the 18th century it was as common as today and if it be indigenous through its present extensive area in the Atlantic States, it is most singular that Pehr Kalm, arriving in Philadelphia in 1748 and exploring from that center in the spring of 1749 should not have noted it; that Walter, dating the preface to his *Flora Caroliniana* "ad Ripas Fluvii Santee, 30 Dec. 1787," should not have got it; that Elliott, publishing the section including *Viola* in 1817, should have had it from no station in South Carolina and from only a single station in Georgia, whence it was sent to him.<sup>1</sup> Darby, covering the "Southern States" in different editions from 1841 to 1860, apparently knew of *Viola Rafinesquii* (as *V. arvensis*) only through Elliott's single station for the plant. In 1860, in the first edition of his *Flora of the Southern States*, Chapman, under *V. tricolor*, var. *arvensis*, said "Cultivated ground. Introduced" and he repeated this treatment in the second edition (1883); but in his third edition (1897) he changed to "Open woods and waste places, perhaps indigenous." Many other records from literature could be quoted, all of the same character, indicating that the pretty lavender-flowered "Field Pansy" of eastern North America was not much known to the acute observers of the 18th and the first decades of the 19th century, but that now it is often a ubiquitous weed over large areas. I have noted from the labels of collections of *V. Rafinesquii* in the Gray Herbarium the habitats recorded. 39 numbers have no habitat given. The remainder are as follows: "native," 1; dry open woods, 8; dry sandy hill (or slope), 4; rocky hill (or summit), 3; open rocky soil, 2; bank of creek, 1; meadows, 5; dry fields, 14; clearings, 3; old orchard, 1; pasture, 3; cultivated field, 2; railroad embankment, 2; roadside, 11; waste places, 11. Pursh's *V. bicolor* (1814) came from "fields of Pennsylvania and Virginia." If the plant were indigenous we should expect the overwhelming majority of habitats to be undisturbed or primitive ones and that the species would now be rarer than it was two centuries (or only one century) ago. The majority of habitats are,

<sup>1</sup> Elliott placed his specimen under *Viola arvensis*, defined with "calyx pubescent, rather longer than the corolla"; but he added "Calyx ciliate, in my specimens shorter than the corolla . . . My specimens agree exactly with one sent me from Pennsylvania by Dr. Muhlenberg."

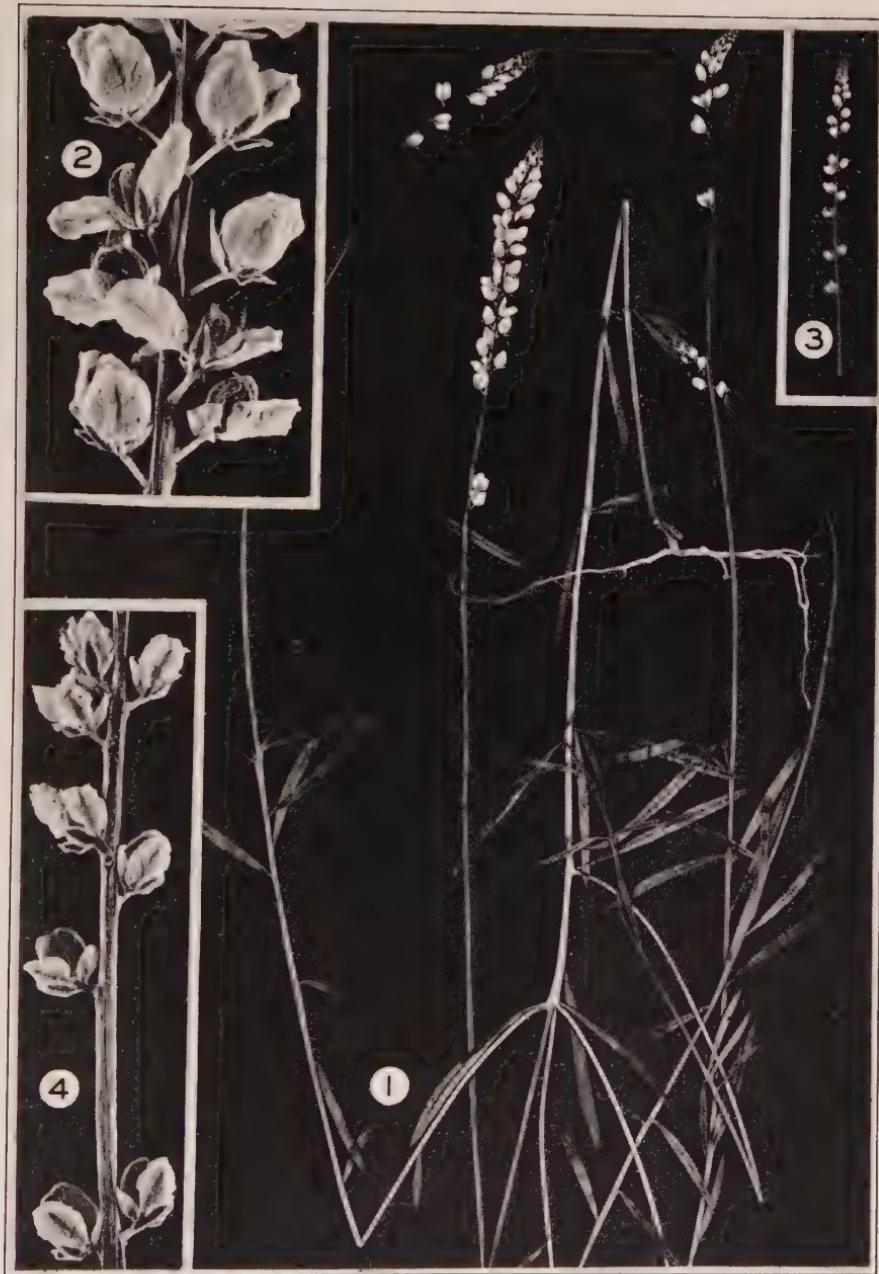


Photo. H. G. Fernald.

*POLYGALA VERTICILLATA*, var. *DOLICHOPTERA*: FIG. 1, TYPE,  $\times 1$ ; FIG. 2, portion of raceme,  $\times 6$ .

Var. *AMBIGUA*: FIG. 3, raceme,  $\times 1$ ; FIG. 4, portion of raceme,  $\times 6$ .



Photo. H. G. Fernald.

*VIOLA KITAIBELIANA*: FIG. 5, flowering plant,  $\times 1$ , from Switzerland; FIG. 6, fruiting summit,  $\times 1$ , from Bithynia; FIG. 3, calyx,  $\times 2$ , from same plant as FIG. 6; FIG. 8, margin of sepal,  $\times 8$ , from Bohemia.

*V. KITAIBELIANA*, var. *RAFINESQUII*: FIG. 1, portion of flowering plant,  $\times 1$ , from District of Columbia; FIG. 2, portion of plant,  $\times 1$ , from Pennsylvania; FIG. 7, calyx,  $\times 2$ , from Pennsylvania; FIG. 4, margin of sepal,  $\times 8$ , from Pennsylvania.

however, spots cleared by the white man or the negro or disturbed by him, his cattle or his hogs. Mixed in the herbarium with specimens of the *Viola* are often found *Veronica arvensis* or *Stenophragma Thaliana*; and the label of W. Becker's *VIOLAE EXSICCATAE*, II Lief. 1901, no. 48, of *V. Rafinesquii* is quite typical: "**Flora Americ. boreal:** Brookland D. C.; locis graminosis, ad vias, in pratis, frequens. . . . Begleitpflanzen: *Lamium amplexicaule*, *Veronica peregrina*, *Lithospermum arvense*, *Poa pratensis* etc."

It would be a pleasant thought, and by several enthusiastic Americans it has been urged, that we have an indigenous pansy in America. Phytogeographically, however, the pansy-group belongs in a region (chiefly continental and southern Europe and adjacent northern Africa and western Asia) with which the indigenous flora of the temperate eastern United States has little in common. The pansies are native, however, in an area which has supplied many of our long-established and still just arriving weeds. Consequently, my first introduction in the field to *Viola Rafinesquii*, an aggressive weed, monopolizing the uninviting band of thin soil between the rails of the trolley-tracks and the worn-out waste fields and neglected lawns about Richmond, Virginia, coupled with Mr. Long's assurance that in his experience it always looks like a weed, quite upset the impression gained from our manuals of recent years, that the plant is native. In similar habitats in the southeastern states we get the Mediterranean *Alchemilla microcarpa* Boiss. & Reut., which has been mistaken by Rydberg for an endemic American and called *Aphanes australis* Rydb. in N. Am. Fl. xxii. 380 (1908).<sup>1</sup>

Our *Viola Rafinesquii* (FIGS. 1, 2, 4 and 7) strongly suggests in the outlines of its leaves and stipules the southern European *V. Kitaibeliana* Roem. & Schultes (FIGS. 3, 5, 6 and 8) but its leaf-blades are more commonly entire and its lilac- or lavender-tinged petals (FIG. 1) are larger than in any specimens of the latter (FIG. 5) in the Gray Herbarium. Knowing that I should get an authoritative identification by sending some Virginian specimens to the distinguished student of the Iberian flora, Mr. A. J. Wilmott of the British Museum, I ventured to put my problem before him. Wilmott's answer follows:

As soon as I saw your specimens of *Viola Rafinesquii* I said to myself that surely they were *Viola Kitaibeliana* Schultes, which is a common ally of *Viola arvensis* Murr. in the Mediterranean region. It differs from *V.*

<sup>1</sup> See discussion on previous page.

*arvensis* in several characters, notably the short pubescence in the lower part of the plant (stem), the longer narrower terminal lobe of the stipule, the shorter stumpier spur. Usually, however, it has very small flowers, the petals being scarcely or not longer than the sepals, whereas in your specimens they are definitely larger. I find, however, that among the mass of specimens that we received from Macedonia during the war, there are quite a number of specimens that have the petals as large as in your plant. Yours also has the long peduncles, and, to judge from a gathering from Maryland by Blake, which is the only one in the herbarium, they stand out 45 degrees or more from the stem when fruiting, giving a "diverging" effect unlike that usual in *V. arvensis*.

The chief objection to this determination lies in the strongly ciliate margin to the sepals in *V. Rafinesquii* as illustrated by the specimens you sent. Blake's are slightly less markedly so, but even so they are more ciliate than in any of our specimens of *V. Kitaibeliana*. On the other hand, although most sepals in our material of *V. Kitaibeliana* have no ciliate hairs, or very minute and inconspicuous ones, on the margins of the sepals, some (including one of the gatherings with large flowers) has the margins almost as densely puberulous as those of *V. Rafinesquii* are ciliate, and also in some sepals the short hairs are replaced by ciliae just as long as in *V. Rafinesquii*.

The foliage is quite good for *V. Kitaibeliana*, as is also the habit. There is, indeed, almost nothing wrong with that determination except that I cannot exactly match it among our material. Yet one knows that *V. arvensis* is so variable, with many forms, and also *V. Kitaibeliana* is very variable, although the different forms have not been thoroughly worked out if they exist, that I feel that if we had a larger series from all parts, we should be able to find specimens just like *V. Rafinesquii*, and thus possibly find from what part of Europe (or North Africa) it was imported. Those from Macedonia and the Southern Caucasus seem to have the strongest ciliation to the sepals, and also the more frequently larger flowers. I find no other species which it could be from Europe if it is not a form of *V. Kitaibeliana*.

Is the ciliation constant in your plant?

The ciliation (FIG. 4) is essentially constant in the American series. I am unable to find in our series any specimens with so few cilia on the sepals as in the most ciliate calyces (FIG. 8) of the European plant. With Wilmott's prediction in mind, that somewhere in the Mediterranean region exact matches for our plant must be found and considering his statement that quite as large petals sometimes occur in Europe, it seems probable that a rare but unrecognized extreme was early brought from southern Europe or northern Africa and that in a new environment it has become quite stabilized. If this interpretation is correct, then *Viola Kitaibeliana*, var. *Rafinesquii*, rapidly spreading and aggressive in eastern America but rare (in this case perhaps unknown) in Europe takes its place with several other weeds which with us have become vastly more common than they are in the country of their origin.

**HYBANTHUS CONCOLOR** (Forster) Spreng. SURRY COUNTY: rich woods on fossiliferous sandy slopes of gullies, Claremont Wharf, nos. 7916, 8374. See pp. 375, 382.

An inland type.

**DIRCA PALUSTRIS** L. SURRY COUNTY: rich woods, slopes of gully 1½ miles north of Surry, no. 8375, the dominant shrub under *Fagus*, reaching a height of 3 m. and trunk-diameter of 7 cm. See p. 383.

In the single extensive area, slopes of a gully tributary to Gray's Creek, the shrub is very abundant. We had seen it nowhere else on the Coastal Plain, nor did Grimes find it on the Peninsula of Virginia.

**RHEXIA MARIANA** L., var. **PURPUREA** Michx. Range extended inland to DINWIDDIE COUNTY: sphagnous bog about 1 mile northeast of Burgess, no. 7546.

**LUDWIGIA SPHAEROCARPA** Ell., var. **JUNGENS** Fernald & Griscom in **RHODORA**, xxxvii. 174, t. 348, figs. 3 and 4 (1935). To the type-station at Cape Henry add several new records. ISLE OF WIGHT COUNTY: sandy and peaty border of Cat Pond, south of Benns Church, no. 7547. NANSEMOND COUNTY: canal in Great Dismal Swamp, east of Laurel, no. 8791. SUSSEX COUNTY: swampy clearing north of Stony Creek, no. 8790. GREENSVILLE COUNTY: pool in *Cephalanthus* swamp about 1 mile north of Skipper's, no. 8788. YORK COUNTY: borders of small pond-holes in woods, northwest of Grafton, no. 7548. See p. 371.

**L. BREVIPES** (Long) E. H. Eames. ISLE OF WIGHT COUNTY: sphagnous border of Cat Pond, south of Benns Church, no. 8376.

Extension inland from Norfolk County.

**PROSERPINACA PECTINATA** Lam. GREENSVILLE COUNTY: pool in cut-over sphagnous pine and oak woods near Three Creek, north of Emporia, no. 8379. YORK COUNTY: borders of small pond-holes in woods, northwest of Grafton, no. 7552. WARWICK COUNTY: shallow pool in woods, north of Lee Hall, no. 8795. See p. 371.

**ARALIA RACEMOSA** L. SURRY COUNTY: rich calcareous wooded gullies along James River, Claremont Wharf, nos. 8380, 9112 (3 m. high!). See p. 382.

Found in a similar habitat near Williamsburg by Grimes.

**ERYNGIUM YUCCIFOLIUM** Michx. SUSSEX COUNTY: dry open sandy pine and oak thickets, near the Greensville County line, south of Jarratt, nos. 8385, 9387. PRINCE GEORGE COUNTY: border of woods north of Talpa, no. 8801. See p. 379.

In regard to the unjustified use of the name *Eryngium aquaticum* for this upland species see Britten & Baker, Journ. Bot. xxxviii. 243 (1900). The species is cited as occurring northward to Connecticut; but in Cat. Fl. Pl. Ferns of Conn. is the note "Introduced from the

South, or possibly native." Except for this presumably adventive colony in a sandy field at Bridgeport, Connecticut ("sparingly naturalized"), Coulter & Rose cite nothing in the East from north of the interior of Virginia.

\**SANICULA MARILANDICA* L., var. *petiolulata*, var. nov. (TAB. 527), foliolis foliorum 1-2 imorum caulinorum longe petiolulatis, petiolulis 1.5-5 cm. longis.—**VIRGINIA:** dry sand, pine barrens about 7 miles south of Franklin, Southampton County, September 7 and 8, 1937, *Fernald & Long*, no. 7553 (TYPE in Gray Herb., isotypes in Herb. Phil. Acad. and elsewhere). See p. 366.

Typical *Sanicula marilandica* has the leaflets of the lower (as well as the upper) leaves all sessile or on very short petiolules (rarely up to 1.5 cm. long). The plant in the pine barrens south of Franklin has all the petiolules of the 1 or 2 lower leaves with extraordinarily long foot-stalks. The habitat is likewise extraordinary for any form of the species (ordinarily of damp and rich habitats). The type-colony is under *Quercus laevis* Walt. and *Viburnum rufidulum* Raf.; and close by are characteristic colonies of such pine-barren species as *Aristida virgata* Trin., *Tradescantia rosea*, var. *graminea* (Small) Anders. & Woodson, *Myrica pusilla* Raf., *Asimina parviflora* (Michx.) Dunal, *Stillingia sylvatica* L., *Euphorbia Ipecacuanhae* L., *Opuntia humifusa* Raf., *Phlox nivalis* Lodd., *Carphephorus bellidifolius* Michx. and other species of dry pineland which we ordinarily do not associate with *Sanicula marilandica*.

S. GREGARIA Bicknell. Frequent in rich woods eastward at least to **SURRY**, **SUSSEX** and **NANSEMOND COUNTIES** (many nos.). See p. 382.

\*S. SMALLII Bicknell. **HANOVER COUNTY:** rich woods north of Gum Tree, no. 7554. **SOUTHAMPTON COUNTY:** rich deciduous woods, northeast of Statesville, nos. 7917, 8384. See pp. 365, 378.

Extension north from North Carolina.

**CHAEROPHYLLUM TAINTURIERI** Hook. **GREENSVILLE COUNTY:** weed in freight-yard, Emporia, no. 7920.

C. PROCUMBENS (L.) Crantz. Extending locally into the Coastal Plain in **SURRY COUNTY**: by brook in drained cypress swamp, Claremont Wharf, no. 7921.

**OSMORHIZA LONGISTYLIS** (Torr.) DC., var. *VILLICAULIS* Fern. **SURRY COUNTY:** rich calcareous wooded gullies by James River, Claremont Wharf, no. 8386; similar habitat below Sunken Meadow Beach, no. 8387. See p. 383.

The plant with glabrous stems not seen.

**CRYPTOTAENIA CANADENSIS** (L.) DC. In rich deciduous (chiefly

calcareous) woods eastward to SUSSEX and SURRY COUNTIES (many nos.). See p. 382.

THASPIUM BARBINODE (Michx.) Nutt. SURRY COUNTY: rich wooded slope at head of Sunken Meadow Creek, south of Claremont, nos. 7922, 8390; seen in similar habitat at Eastover. SUSSEX COUNTY: moist woods bordering Assamoosick Swamp, about 2 miles northeast of Homeville, no. 9114. See pp. 375, 382.

OXYPOLIS RIGIDIOR (L.) Coulter & Rose. Localized in sphagnum boggy depressions of DINWIDDIE, PRINCE GEORGE, SUSSEX and GREENSVILLE COUNTIES (many nos.), and doubtless elsewhere. See p. 367.

In southeastern Virginia *Oxypolis rigidior* is often the quickly visible indicator of a good habitat. Three of its stations have proved to be among the best of sphagnum depressions, with many localized Coastal Plain types present.

RHODODENDRON NUDIFLORUM (L.) Torr., var. GLANDULIFERUM (Porter) Rehder. SOUTHAMPTON COUNTY: bottomland swamp of Nottoway River, Smith's Ferry, no. 7928.

Very rare on the Coastal Plain, Rehder in his *Azaleas of North America*, 138 (1921) saying: "from Massachusetts to northwestern South Carolina and often grows together with the typical form. It seems, however, nearly absent from the southeastern part of the range, that is from the coastal plain from New Jersey to North Carolina and more common West, for the plants I have seen from the extreme Western localities, western Tennessee and southern Ohio, represent this variety though from the last named locality (Lawrence County) and from western New York (Monroe County) I have seen specimens of the typical form."

KALMIA ANGUSTIFOLIA L., var. CAROLINIANA (Small) Fernald. NANSEMOND COUNTY: low pinelands east of Whaleyville, no. 7564.

The known Virginian stations have all been in the Great Dismal Swamp.

EPIGAEA REPENS L. Very local on the Coastal Plain. PRINCE GEORGE, ISLE OF WIGHT, SURRY and SOUTHAMPTON COUNTIES: local colonies too liable to extermination.

HOTTONIA INFLATA Ell. To the few recorded stations add SOUTHAMPTON COUNTY: inundated swamp west of Adams Grove, no. 7944. SURRY COUNTY: shallow water of gum swamp, Blackwater River, south of Savedge, no. 8405.

LYSIMACHIA CILIATA L. Rich deciduous or bottomland woods, eastward to JAMES CITY, SURRY and SUSSEX COUNTIES (many nos.). FRAXINUS AMERICANA L. Extending eastward along the James to

SURRY COUNTY: below Sunken Meadow Beach, no. 8414. See pp. 375, 382.

*F. BILTMOREANA* Beadle. DINWIDDIE COUNTY: swampy woods, Poplar Grove (= Poplar Spring) Church, no. 8413. SOUTHAMPTON COUNTY: sphagnum wooded spring-heads east of Emporia, no. 8415. See p. 380.

*FRAXINUS TOMENTOSA* Michx. f. *Hist. Arb. Am.* iii. 112, t. 9 (1813). *F. Americana profunda* Bush in Mo. Bot. Gard. Fifth Ann. Rep. 147 (1894). *F. profunda* Bush in Britton, Man. 725 (1901). *F. Michauxii* Britton, Man. ed. 2: 1075 (1905). *F. profunda*, var. *Ashei* E. J. Palmer in Journ. Arn. Arb. xiii. 417 (1932). PLATE 528.

Originally treated as a variation (category not indicated) of *Fraxinus americana*, from which it differs "in the strong pubescence of the shoots, the large size of the leaves, and the very large fruit, the shaft of which is often strongly six-sided," *F. profunda* was further defined in Britton's Manual by its being placed with *F. pennsylvanica* Marsh. and by its larger samara with more decurrent wing. The material distributed by Bush shows that the long-acuminate subcoriaceous leaflets are on definite wingless petiolules (FIG. 3); the samaras (FIG. 4) without sharply defined slender bodies, the mature fruits 4–7.5 cm. long, with wing 6–12 mm. broad; the fruiting calyx rather large for the group. Exactly such trees, though often lower, are abundant along the rivers and in the wooded swamps of eastern Virginia, the specimens identified variously as *F. pennsylvanica* and *F. profunda*, with note sometimes made of the lustrous upper surfaces of the subcoriaceous leaflets. In this tree the petiolules (FIG. 5) are quite as definite as those of *F. americana* but mostly longer (0.5–2 cm. long). In the polymorphous *F. pennsylvanica* (PLATE 529) the petiolules are bordered nearly to their bases by the decurrent tissue of the blades and the fruits have clearly defined slenderly clavate bodies sharply contrasted with the wings which extend only narrowly below the middle.

True *Fraxinus pennsylvanica* Marsh. I take to be the common tree (PLATE 529, FIGS. 3 and 4) of Marshall's region in Pennsylvania, defined by him as having the fruits ("seeds") "longer and narrower than any of the other kinds, almost terminating in a point at their base," for which reason, presumably, he called it "*Pennsylvanian Sharp-keyed Ash.*" The tree, abundantly represented from Marshall's region, was described as *F. Darlingtoniana* Britton, l. c. 725 (1901). It occurs from the warmer valleys of New England to Minnesota,



Photo. H. G. Fernald.

SANICULA MARYLANDICA, var. PETIOLULATA,  $\times \frac{1}{2}$ .

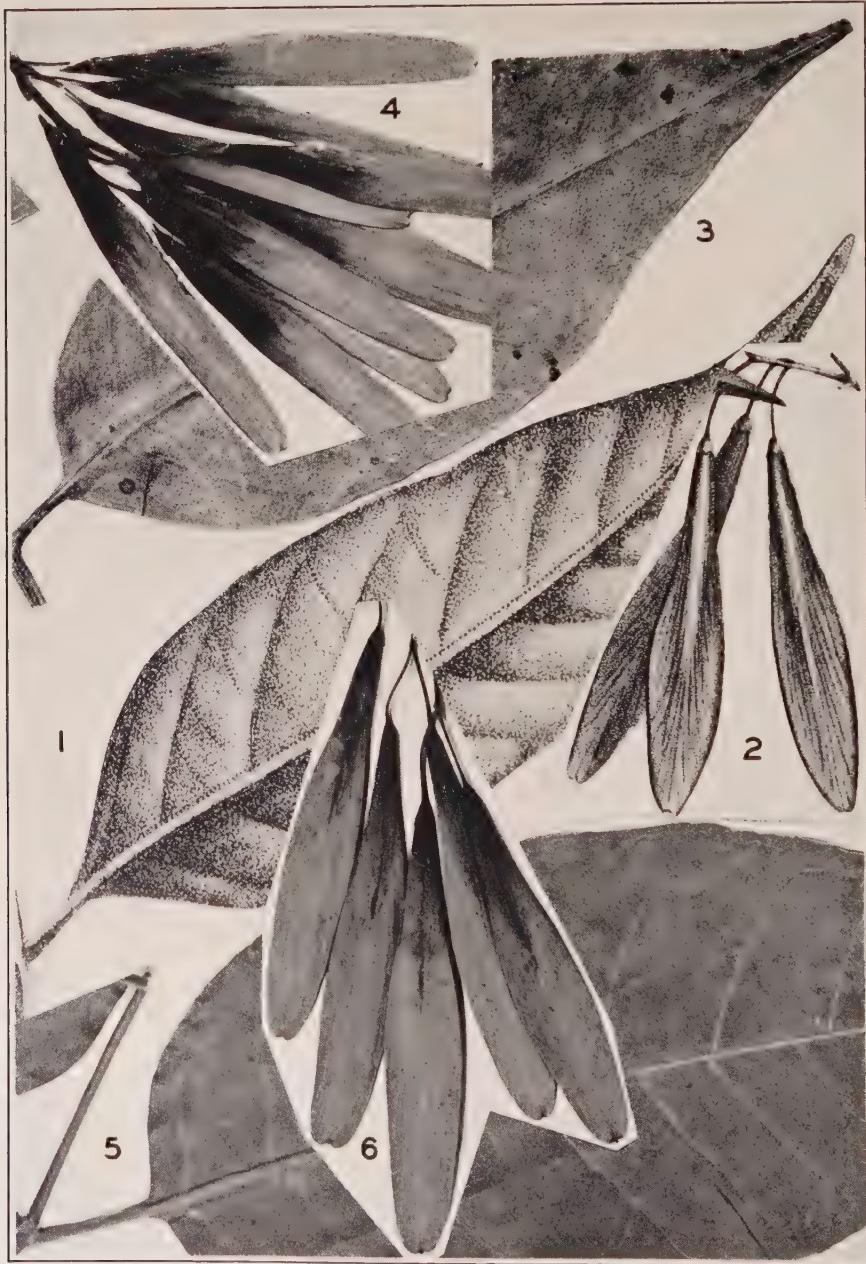


Photo. H. G. Fernald.

FRAXINUS TOMENTOSA, lateral leaflet and samaras; FIGS. 1 and 2, after Michaux filius;  
FIGS. 3 and 4, *P. profunda* from Missouri; FIGS. 5 and 6, from Virginia.

south to Georgia, Alabama and Arkansas, but the only material of it which I have seen from southeastern Virginia is Grimes's no. 3880 from near Williamsburg.

The broader-fruited *Fraxinus profunda*, on the other hand, is represented in the Gray Herbarium by the following Virginia collections: Chickahominy River, near Lanexa, *Grimes*, no. 4126; James River, near Richmond, April 24, 1915, *J. R. Churchill* (in fine staminate flower, showing the subulate tips of the anthers 0.5–1 mm. long, whereas the mucronate tips in *F. pennsylvanica* are only 0.2–0.4 mm. long); swampy woods, London Bridge, Princess Anne County, *Fernald & Long*, no. 4128; Indian Creek, Norfolk County, *Fernald, Griscom & Long*, no. 4690; Appomattox River, near Hopewell, *Fernald, Long & Smart*, no. 5890; Three Creek, Drewryville, *Fernald, Long & Smart*, no. 5891 (FIGS. 5 and 6). Palmer includes in his *F. profunda*, var. *Ashei* specimens from the Potomac Valley and from the Eastern Shore of Maryland, and it may reach southern New York.<sup>1</sup>

The tree is so characteristic of the river-swamps and dismals in southeastern Virginia that it seemed improbable that it should have been overlooked by Michaux and other early collectors who went through the region. André Michaux and his son François André, it now seems clear, got it and the younger Michaux described and beautifully illustrated it, his plate showing the wholly characteristic foliage with slender petiolules and the quite distinct fruit. *F. tomentosa* came from "la Pensylvanie, le Maryland et la Virginie" and the illustration (see our FIGS. 1 and 2), presumably from the common tree

<sup>1</sup> I take it that *Fraxinus tomentosa* Michx. fil. also includes *F. Michauxii* Britton, Man. ed. 2: 1075 (1905). Britton's description is satisfactory for it and he originally stated that his *F. Michauxii* (type from southeastern New York) is "*F. tomentosa* Michx. f. Arb. For. 3: pl. 9, but not as to the description there given, which applies to *F. Pennsylvanica*." In view of the very confused ideas regarding what constitute stable characters in the group it is disconcerting to be told that, when Michaux filius illustrated his own new species, he was really illustrating something else. The matter was not really clarified when in his North American Trees, 804 (1908) Britton said of his *F. Michauxii* "The species was illustrated by Michaux as *Fraxinus tomentosa* Marshall." I can find no such name used by Marshall and Michaux (André) did not publish it nor illustrate it; it was first published by Michaux filius (François André) and has by everyone, except Britton in this instance, been ascribed to him. Even *F. epipetra* Michx. Fl. Bor.-Am. ii. 256 (1803), commonly treated as identical with *F. americana* L., is open to question. My memorandum made in 1903, when examining Michaux's herbarium, says "Foliage of *F. pennsylvanica*." A photograph of it, daily expected, will settle its identity. One thing seems reasonably settled. The Clayton specimen (a photograph before me) which Linnaeus had before him in preparing his Species Plantarum (1753) and himself marked "*americana*" is a characteristic leaf of *F. americana* as regularly understood. From that one Linnean species on the types of the American species must be studied anew.

of river-swamps of southeastern Virginia, is perfect. Incidentally, *Fraxinus tomentosa* Michx. f. "croît, de préférence, dans les marais, ainsi que dans tous les endroits fréquemment submergés, ou qui sont exposés à l'être par les fortes pluies. . . . se trouve réuni avec les arbres qui, comme lui, aiment les terrains fort humides, tel que le *Juglans squamosa*, le *Juglans amara*, le *Quercus discolor*, l'*Acer rubrum*, le *Liquidambar styraciflua* et la *Nyssa aquatica*." That *F. profunda* Bush (1901), at least as to its eastern phase, is *F. tomentosa* Michx. f. (1813) is unquestionable. Whether it is also *F. pubescens* Lam. (1786) I can more easily tell when a photograph of Lamarck's type reaches me from Paris. It may also prove to be one of the full dozen species of North American *Fraxinus* proposed by Bosc in 1808, chiefly from the southeastern states: *F. rufa*, *F. fusca*, *F. longifolia*, *F. rubicunda*, etc. By an easy wave of the hand, demoting, without examining the types, most of the species proposed by Lamarck, Bosc, Michaux filius and others of 100 to 150 years ago, to the unquestioned synonymy of a few species of Linnaeus, Miller and Marshall, the way was cleared for new propositions of recent date. Until the types of all the early-proposed species have been most intelligently checked the names of our American ashes will remain hopelessly tentative. Had the names been given to Chinese trees their applications would long ago have been settled by American students of woody plants!

FRAXINUS PENNSYLVANICA Marsh., var. **Austini**, var. nov. (TAB. 529 FIG. 1 et 2), ramulis petiolis rhachibusque velutinis; foliolis plerumque dentatis subtus plus minusve rufidulo-pubescentibus; fructibus 2.8–3.7 (rare—4) cm. longis, corpore 1–1.7 cm. longo, ala spathulata 4–8 mm. lata.—Quebec to Manitoba, south to Nova Scotia, New England, northern New Jersey to upland of Virginia, New York, Ohio, Illinois and Iowa. TYPE: bank of St. John River, Ingleside, Westfield, Kings County, New Brunswick, August 6, 1909, *Fernald*, no. 2069.

As I see the species, *Fraxinus pennsylvanica* Marshall consists of three rather pronounced varieties. As already explained (p. 450), I take as var. *typica* the tree which abounds in the region best known to Marshall, the extreme with pubescent young branchlets, petioles and leaf-rachises and with fulvous pubescence on the lower surfaces of the commonly entire leaflets; the fruits the longest in the species, with elongate and slender body and narrow wings (FIGS. 3 and 4). This tree is common southward, from Alabama to Louisiana, extending northward to central Maine, the Connecticut Valley of New Hamp-

shire and Vermont, the Champlain Valley of Vermont, central New York, southern Ontario, Michigan, Wisconsin and Minnesota. Var. *Austini*, which was sent to Asa Gray as an undescribed variety by the late COE F. AUSTIN (1831–1880), from Closter, New Jersey, is generally more northern. Var. *lanceolata* (Borkh.) Sargent, with branchlets, petioles and usually the serrate leaflets glabrous, is wide-ranging. *F. campestris* Britton, No. Am. Trees, 799, fig. 726 (1908), with “young twigs . . . either smooth or velvety” and toothed leaflets “more or less hairy beneath, rarely smooth on both surfaces,” seems to me to be *F. pennsylvanica*, var. *lanceolata* passing into var. *Austini*.

My arrangement of the varieties of *Fraxinus pennsylvanica* follows:

- Young branchlets velvety-tomentose; petioles, leaf-rachises and lower surfaces of leaves more or less fulvous-pubescent.
- Mature samaras 4–7.5 cm. long, the body (covering seed) 1.7–3 cm. long, the linear-ob lanceolate wing 3–6 (rarely 7.5) mm. broad; leaflets usually entire or merely undulate, rarely dentate. . . . . Var. *typica*.
- Mature samaras 2.8–3.7 (rarely 4) cm. long, the body 1–1.7 cm. long, the spatulate wing 4–8 mm. broad; leaflets commonly toothed. . . . . Var. *Austini*.
- Young branchlets, petioles and leaf-rachises glabrous; leaflets toothed, green and glabrous or at most with pale villosity on the principal nerves beneath; mature samaras 2.7–4.5 cm. long, their bodies 1–2 cm. long, the spatulate or oblanceolate wings 4–6 mm. broad. . . . . Var. *lanceolata*.

*F. PENNSYLVANICA* Marsh., var. **typica**. *F. pennsylvanica* Marsh. Arbust. Am. 51 (1785). *F. Darlingtoniana* Britton, Man. 725 (1901) and No. Am. Trees, 802, fig. 730 (1908).—Alabama to Louisiana, north to warm valleys of New England, New York, southern Ontario, Michigan, Wisconsin and Minnesota. PLATE 529, FIGS. 3 and 4.

Var. *AUSTINI*. See above.

Var. *LANCEOLATA* (Borkh.) Sargent, Sylva, vi. 50 (1894). *F. lancolata* Borkh. Handb. Forst. Bot. i. 826 (1800).—Quebec to Saskatchewan and Montana, south to Virginia, Alabama, Arkansas, Oklahoma and Texas.

As already sufficiently emphasized many names, both specific and varietal, may belong to these three varieties. Until their bases are most painstakingly checked their application cannot safely be guessed at. Too much guessing in the past has created a confusion altogether not creditable. Under var. *lanceolata*, for instance, Sargent, in making the combination, cited three earlier varietal names which have to be considered. Any one of them, if belonging here, would upset the combination *F. pennsylvanica*, var. *lancolata* (Borkh.) Sargent.

In southeastern Virginia *FRAXINUS PENNSYLVANICA* follows the James at least to **SURREY COUNTY**: Claremont Wharf, no. 8412.

*OBOLARIA VIRGINICA* L. To the few recorded stations add the following. **ISLE OF WIGHT COUNTY**: rich deciduous woods north of Walters, no. 7145. **SURREY COUNTY**: rich wooded slope at head of Sunken Meadow Creek, south of Claremont, no. 7951. **GLOUCESTER COUNTY**: rich wooded bank, near Gloucester, *E. J. Palmer*, no. 39,773. See pp. 364, 375.

*ASCLEPIAS PURPURASCENS* L. Rare on the Coastal Plain. **NANSEMOND COUNTY**: roadside thicket west of Cypress Chapel, no. 7579.

\**ACERATES FLORIDANA* (Lam.) Hitchc. **SUSSEX COUNTY**: border of peaty and argillaceous swale, north of Littleton, no. 8422. See p. 378.

The first in the Gray Herbarium from north of South Carolina; known from a single station in Delaware.

\**IPOMOEA LACUNOSA* L., forma **purpurata**, forma nov., corollis purpureis.—**VIRGINIA**: grassy roadside about 7 miles south of Franklin, Southampton County, September 8, 1937, *Fernald & Long*, no. 7580; wet thicket bordering Whiteoak Swamp, south of Elko Station, Henrico County, September 21, 1938, no. 9409.

A form with the flowers consistently claret-purple instead of the usual milk-white.

*PHLOX NIVALIS* Lodd. **SOUTHAMPTON COUNTY**: dry sand, pine barrens 6 to 7 miles south of Franklin, nos. 7146, 7583, 7952. **GREENSVILLE COUNTY**: border of dry rich woods near Metcalf Branch, east of Emporia, no. 7953. See pp. 364, 366.

At the latter station broadening of the road has reduced what presumably was a good colony to about 6 struggling survivors.

*P. CAROLINA* L., var. *TRIFLORA* (Michx.) Wherry. **DINWIDDIE COUNTY**: border of swampy woods, Poplar Grove (= Poplar Spring) Church, no. 8432; border of swampy woods east of Burgess, no. 8433. See p. 381.

The stations, discovered by *Meade Lewis*, who took us to them, are rather extensive. The plants are the narrow-leaved extreme but they have calyx-lobes mostly 7–9 mm. long, this agreeing with var. *triflora* which Wherry, *Bartonia*, no. 13:32 and 36, treats as a plant of the upland of North Carolina, Virginia and Maryland, thence to southern Indiana. Our stations are on the inner margin of the Coastal Plain.

*NEMOPHILA MICROCALYX* (Nutt.) Fisch. & Meyer. **SURREY COUNTY**: rich woods on fossiliferous sandy slopes of gullies near Claremont Wharf, no. 7954. See p. 375.



Photo. H. G. Fernald.

*FRAXINUS PENNSYLVANICA*: FIG. 3, fruit from Massachusetts; FIG. 4, fruit from Pennsylvania.

Var. *AUSTINI*: FIG. 1, portion of TYPE, from New Brunswick; FIG. 2, fruit from New Jersey (Austin).

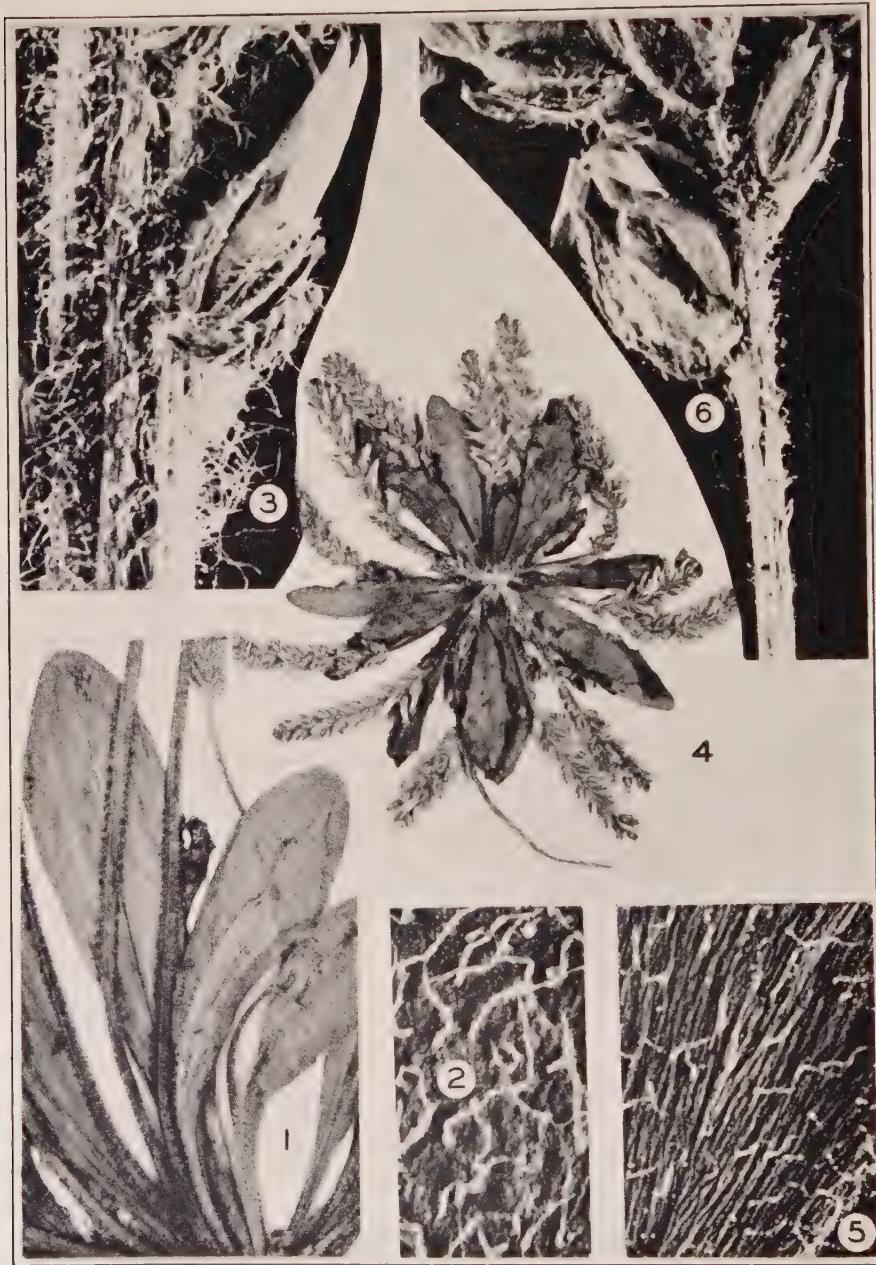


Photo. H. G. Fernald.

PLANTAGO VIRGINICA: FIG. 1, leaves and scapes,  $\times 1$ ; FIG. 2, upper surface of leaf,  $\times 5$ ; FIG. 3, base of spike,  $\times 5$ .

Var. VIRIDESCENS: FIG. 4, TYPE,  $\times 1$ ; FIG. 5, upper surface of leaf,  $\times 5$ ; FIG. 6, base of spike,  $\times 5$ .

The old specimen from Virginia, in the Gray Herbarium, is of vague origin.

*PHACELIA DUBIA* (L.) Trel. Our only Coastal Plain station in GREENSVILLE COUNTY: bottomland woods by Metcalf Branch, east of Emporia, no. 7955. See p. 374.

\**MYOSOTIS VERSICOLOR* (Pers.) Sm. DINWIDDIE COUNTY: in and about a newly seeded clover-field southwest of Petersburg, no. 7956.

\**VERBENA BRASILIENSIS* Vellozo. WARWICK COUNTY: fields and roadsides, Morrison, no. 7585. See p. 371.

A tropical species, recorded by Dr. Perry, *Revis. N. Am. Sp. Verbena*, Ann. Mo. Bot. Gard. xx. 255 (1933), northward to Wilmington, North Carolina.

*V. URTICIFOLIA* L. The coarse, typical form of the species, local on the Coastal Plain. YORK COUNTY: border of salt marsh northwest of Yorktown, no. 7586.

*TEUCRIUM CANADENSE* L., var. *VIRGINICUM* (L.) Eaton. See Fernald, *RHODORA*, xxxv. 395 (1933). Extending down the James to SURRY COUNTY: rich alluvial woods and thicket back of sand-beach of James River, Claremont Wharf, no. 8435. See p. 382.

*TRICHOSTEMA DICHOTOMUM* L., var. *PUBERULUM* Fernald & Griscom in *RHODORA*, xxxix. 445 (1937). To the single Virginian station (in Norfolk County) reported add one from SOUTHAMPTON COUNTY: dry sand, pine barrens about 7 miles south of Franklin, no. 7591. See p. 366.

*SCUTELLARIA VERSICOLOR* Nutt. Extending locally eastward to SURRY COUNTY: rich calcareous wooded gullies by James River, Claremont Wharf, no. 8436; rich alluvial woods and thicket back of sand-beach of James River, below Sunken Meadow Beach, no. 8437. See pp. 382, 383.

\**SCUTELLARIA INTEGRIFOLIA* L., forma *rhodantha*, f. nov., corollis roseatis.—Damp thicket by roadside, west of Sussex Court House, VIRGINIA, June 9, 1938, Fernald & Long, no. 8440 (TYPE in Gray Herb., ISOTYPE in Herb. Phil. Acad.).

An unusually attractive color-form, making a conspicuous display, with flowers in color suggesting *Physostegia*.

*AGASTACHE NEPETOIDES* (L.) Ktze. Locally eastward to SURRY COUNTY: rich alluvial woods and thicket back of sand-beach of James River, below Sunken Meadow Beach, no. 8443. See p. 383.

*PHYSOSTEGIA DENTICULATA* (Ait.) Britton. Eastward to NANSEMOND COUNTY: wooded bottomland of Somerton Creek, Factory Hill, no. 8444.

*STACHYS NUTTALLII* Shuttlew. SURRY COUNTY: rich alluvial woods and thickets back of sand-beach of James River, below Sunken Meadow Beach, no. 8446. See p. 382.

*COLLINSONIA CANADENSIS* L. Eastward to SUFFOLK COUNTY: rich calcareous woods at head of Sunken Meadow Creek, south of Claremont, no. 8449; seen in similar habitat at Eastover. See p. 382.

\**PHYSALIS MONTICOLA* C. Mohr. SOUTHAMPTON COUNTY: dry sandy open pine and oak woods 6 to 7 miles south of Franklin, nos. 8452, 8905.

First except from the mountains of Alabama. See p. 380.

*SCROPHULARIA LANCEOLATA* Pursh. SUSSEX COUNTY: rich wooded slope, 4 miles south of Stony Creek, no. 8454. See p. 381.

Extension into the edge of the Coastal Plain; Pennell (Scroph. E. Temp. N. Am. 278-280) noting stations only in the upland districts.

*PEDICULARIS CANADENSIS* L. Locally eastward to NANSEMOND COUNTY.

*SCHWALBEA AMERICANA* L. To the stations already noted add the following. SUSSEX COUNTY: dry open sandy pine and oak thickets, near the Greensville County line, south of Jarratt, no. 8461. GREENSVILLE COUNTY: similar habitat, near the Sussex County line, north of Emporia, no. 8462. Really one area, situated in two counties. See pp. 378, 379.

*UTRICULARIA GEMINISCAPA* Benj. Inland to DINWIDDIE COUNTY: peaty spring-fed pond, Century House, northeast of Burgess, no. 7612.

*CONOPHOLIS AMERICANA* (L. f.) Wallr. SURRY COUNTY: rich wooded gullies along James River, below Sunken Meadow Beach, no. 8464; seen also at Eastover. See p. 382.

\**PLANTAGO VIRGINICA* L., var. *viridescens*, var. nov. (TAB. 530, FIG. 4-6), foliis oblanceolatis 0.5-10 cm. longis 0.2-2 cm. latis repando-dentatis vel integris supra glabris vel sparse hirsutis glabratisque; pedunculis 1-12 cm. longis piloso-hispidis, pilis 0.2-0.5 mm. longis; spicis 0.3-13 cm. longis; sepalis 1.5-2.3 mm. longis; corollae lobis 1-2.5 mm. longis; seminibus 1.2-1.5 mm. longis.—MARYLAND to Florida, west, locally, to Texas. MARYLAND: border of pasture-meadow, about 1 mile southeast of Rock Springs, Cecil County, May 3, 1925, Long, no. 32,312; field, Owing's Mills, Baltimore, May 3, 1910, J. R. Churchill. VIRGINIA: dry fields, campus of University of Richmond, Westhampton, April 24, 1935, Alice Ryland; argillaceous and siliceous cotton field south of Littleton, April 4, 1938, Fernald & Long, no. 7964; sandy roadside-bank near Hart's Bridge, southwest of Sunbeam, April 4, 1938, Fernald & Long, no. 7965 (transitional); bare sand near Walters, April 6, 1938, Fernald & Long, no. 7966 (TYPE in Gray Herb; ISOTYPE in Herb. Phil. Acad.). NORTH CAROLINA: hard clayey soil by roadside, 5 miles south of New Bern, April 15, 1932, Weatherby, no. 6089. SOUTH CAROLINA: dry pine woods south of Myrtle Beach, April 8, 1932, Weatherby & Griscom, no. 16,642; loose sand, roadside, 1 mile north of Georgetown Landing, April 20, 1932, Griscom & Weatherby, no. 16,640; sandy soil by ditches, Sum-

merville, April 11, 1912, *Robinson*, no. 130. GEORGIA: old specimen without further data (*Herb. Geo. Thurber*); Augusta, *Olney & Metcalf*, no. 253. FLORIDA: weed in cultivated ground, Duval County, April 2, 1902, *Fredholm*, no. 5019; sandy soil, Eustis, April 1–15, 1894, *Nash*, no. 344; waste ground, Hillsborough County, March 5, 1904, *Fredholm*, no. 6305; Apalachicola, April, 1875, *A. Gray*; *Hibernia*, March, 1869, *Canby*. TEXAS: Houston, March 23, 1900, *Canby*, no. 206.

In southeastern Virginia, in early April, 1938, var. *viridescens* was in full anthesis and, at the type station, in fruit, whereas typical and ubiquitous *Plantago virginica* was not yet flowering (see p. 373), though on the 9th the first flowers were coming out. Not only the early flowering, the small flowers (FIGS. 4 and 6) and the green, soon glabrate leaves strongly contrast with typical *P. virginica*. The leaves are consistently narrow, their pubescence (FIG. 5) short, and the pubescence of the peduncle (FIG. 6) short and relatively stiff. Typical *P. virginica* varies in size, of course, but it is usually much larger than var. *viridescens*. It has a grayish-green tone on account of the villous young leaves and peduncle, whence a colloquial name, "Hoary Plantain." Its leaves (FIG. 1) are narrowly obovate and rather permanently villous, the hairs (FIG. 2) much longer than in var. *viridescens*. Its peduncles are copiously villous with flexuous hairs (FIG. 3) 1–2 mm. long (except in starved individuals); its sepals are 2–2.5 mm. long, corolla-lobes (FIG. 3) 2–3 mm. long and seeds 1.6–2 mm. long.

It is possible that var. *viridescens* may have been described by Rafinesque as a species. I have been unable to derive clear satisfaction from his diagnoses; and for a variety the present name is appropriate and rests on cited specimens. In his recent treatment of *Plantago virginica* Pilger recognizes<sup>1</sup> only two varieties: var. *longifolia* Gray, which is all really *P. rhodosperma* Decne., as shown by the sheets labeled by Gray; and var. *progressa* Pilger, a very densely villous extreme from Mexico. *P. purpurascens* Nutt., as shown by his material at the Academy of Natural Sciences of Philadelphia, is typical *P. virginica*.

P. HETEROPHYLLA Nutt. Local weed of cultivated fields. SOUTHAMPTON COUNTY: north of Sebrell, no. 7968. GREENSVILLE COUNTY: 1 mile south of Emporia, no. 7154. See pp. 364, 372, 373.

GALIUM UNIFLORUM Michx. Range extended to the Peninsula of Virginia and, later, to the Gloucester Peninsula. YORK COUNTY: dry open woods northwest of Tabb's, no. 7619. GLOUCESTER COUNTY: rich mixed woods east of Gloucester, no. 8857. See p. 371.

<sup>1</sup> Pilger in Engler, *Pflanzenr.* iv<sup>289</sup>, 213, 214 (1937).

*DIODIA TERES* Walt., var. *HYSTRICINA* Fernald & Griscom. Range extended westward to YORK COUNTY: sandy beach of York River, northwest of Yorktown, no. 7620. See p. 372.

*CEPHALANTHUS OCCIDENTALIS* L., var. *PUBESCENS* Raf. PRINCE GEORGE COUNTY: swampy woods, bottomland of Powell's Creek, Garysville, no. 8477. GREENSVILLE COUNTY: shallow pond-hole in woods, just north of Dahlia, no. 8858.

*HOUSTONIA PATENS* Ell. Extending into the inner border of the Coastal Plain. GREENSVILLE COUNTY: dry rich woods, about 1 mile west of Emporia, no. 7970. SOUTHAMPTON COUNTY: sandy roadside bank near Hart's Bridge, no. 7969.

*H. LONGIFOLIA* Gaertn. Locally along the James to SURRY COUNTY: rich wooded gullies below Sunken Meadow Beach, no. 8482. See p. 382.

*OLDENLANDIA BOSCII* (DC.) Chapm. To the first Virginian station, already reported add, also in SOUTHAMPTON COUNTY: wet siliceous and argillaceous drained border of Predler's Pond, Nottoway Swamp, southwest of Sedley, no. 7625; border of peaty pool in cypress-gum swamp, about 4 miles northwest of Capron, no. 7626. See p. 364.

*VIBURNUM ACERIFOLIUM* L. SURRY COUNTY: rich calcareous woods at head of Sunken Meadow Creek, south of Claremont, no. 8484. See p. 382.

Our only Coastal Plain station.

*EUPATORIUM FISTULOSUM* Barratt acc. to Wiegand & Weatherby in RHODORA, xxxix. 306 (*E. purpureum* and *E. trifoliatum* sensu Wiegand in RHODORA, xxii. 161, not L.). SUSSEX COUNTY: alluvial woods, Coppahaunk Swamp, about 3 miles southeast of Waverly, no. 7637.

Cited by Wiegand, l. c. only from the region of the Blue Ridge in Virginia.

*E. PURPUREUM* L., acc. to Wiegand & Weatherby, l. c. (*E. trifoliatum* L.; *E. falcatum* Michx.). SURRY COUNTY: rich calcareous woods at head of Sunken Meadow Creek, south of Claremont, no. 8488; seen also at Eastover. NANSEMOND COUNTY: rich deciduous wooded slope, South Quay, no. 8489. See p. 382.

The freshly dried plant has a strong fragrance of vanilla.

*CARPHEPHORUS BELLIDIFOLIUS* (Michx.) T. & G. To the first Virginian stations (in Isle of Wight County), already recorded, add one in SOUTHAMPTON COUNTY: dry sand, pine barrens about 7 miles south of Franklin, no. 7659. NANSEMOND COUNTY: dry woods east of South Quay, no. 9173. GREENSVILLE COUNTY: pine woods west of Skipper's, no. 8870. See p. 366.

Plant glutinous, staining the papers yellow.

*C. TOMENTOSUS* (Michx.) T. & G. To the only known Virginian station (in Isle of Wight County) add the following. SOUTHAMPTON COUNTY: clearing in wet argillaceous pineland northeast of Courtland,

no. 7655. NANSEMOND COUNTY: low pinelands east of Whaleyville, nos. 7656, 7657 (7.5 dm. high, with about 40 heads in larger plants); sandy roadside thicket bordering pine woods, south of Piney Grove School, northwest of Whaleyville, no. 7658, very abundant and handsome, with corymbs up to 2 dm. across. GREENSVILLE COUNTY: sphagnous bog about 1 mile northwest of Dahlia, nos. 8869, 9172. See pp. 367, 370.

LIATRIS SPICATA (L.) Willd. SUSSEX COUNTY: moist pinelands just southeast of Waverly, no. 7660, very abundant.

As pointed out on p. 366, *Liatriis spicata* in Virginia and the Carolinas is chiefly montane.

(*To be continued*)

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#### MISCELLANEOUS NOTES ON UNITED STATES PLANTS

ROBERT F. MARTIN

Among the plants on the desk of the late Doctor F. V. Coville at the time of his death was a *Juncus* collected in the La Sal National Forest, southeastern Utah, R. E. Mellenthin 3, 20 June, 1912, tentatively determined as *J. interior* Wiegand. A check against authentic material of this species in the National Herbarium supports this identification and establishes a record for this species in Utah. The specimen is in the herbarium of the Forest Service, no. 4987.

Last year a fresh specimen of *Solanum rostratum* Dunal was transmitted for determination to the Bureau of Plant Industry by Mr. J. Parish, Agricultural Agent, Grand County, Utah. I think this is the first record of the plant in Utah, at any rate it is not included in Tidestrom's Flora. The specimen was collected at Moab in the county mentioned, where Mr. Parish observed, "It is getting pretty common."

Although described from Texas near the New Mexico line, *Selenia dissecta* Torr. appears not to have been reported from the latter state. It is represented in the herbarium of the National Arboretum by M. W. Talbot 921, collected along a roadside near Capitan, Lincoln County, 12 April, 1929.

On 14 July, 1934, I found a growth of *Festuca myuros* L. in a roadside ditch half way up the Blue Ridge near Charles Town, Jefferson County, West Virginia. This species has not been reported from West Virginia. The specimen, my 207, is in the herbarium of West Virginia University.

I have determined as *Carex Bushii* Mackenzie a plant collected by *Wilbert Frye*, 20 May, 1935, Okonoko, Hampshire County, West Virginia. Mackenzie, while listing bordering states, made no mention of West Virginia material in his treatment in North American Flora, and I offer this as a first record. The specimen is in the herbarium of the National Arboretum.

*JUNCUS BRACHYCEPHALUS* (Engelm.) Buch., forma **hexandrus**, f. n., a forma typica staminibus 6 differt.

TYPE in the herbarium of West Virginia University, collected on low, sandy marl border of the east side of Cedar Lake, Lagrange County, INDIANA, 19 Sept., 1933, *Chas. C. Deam* 54539A. Also represented in the National Herbarium by *H. C. Beardslee*, Aug. 1890, Cheboygan County, MICHIGAN, and by *F. V. Coville*, 23 Aug. 1886, Welland County, ONTARIO.

Since this peculiarity in otherwise typical material of *J. brachycephalus* causes it to key out in our manuals to *J. caesariensis* Coville (*J. asper* Engelm., not Sauzé), an entirely different plant known only from southern New Jersey and southeastern Virginia, it seems well to give it formal recognition. To one lacking herbarium material of *J. caesariensis* the confusion would probably be accentuated by a tendency of the lower leaves of the present form (as well as the species) to become minutely scabrous. This roughness is much less pronounced than in *J. caesariensis*. The latter species is also at once distinct by its narrower inflorescence and larger perianth-segments, about 4.5 mm. in length, those of the present plant being only 2-2.5 mm. long. The seeds, too, are very different; in *J. caesariensis* they are long-tailed at either end and have a total length of 2 mm., while those of *J. brachycephalus* and its form are .7-1 mm. long. The caudate seeds of the present form will distinguish it from *J. articulatus* L., in case of its being sought under that species.

*CALLIRHOË INVOLUCRATA* (T. & G.) Gray, var. **Bushii** (Fernald), comb. nov. *C. Bushii* Fernald, RHODORA 11: 51. 1909.

Last year in starting a study of North American *Malveae*, I annotated all sheets of this as *C. involucrata*. I am now convinced that such treatment was more than conservative, and feel that this plant from southern Missouri and northern Arkansas can be well treated as a variety. Its intergrades and absence of good floral or carpellary characters restrain me from conserving its specific status. I am now naming *Callirhoe* as follows:

Calyx subtended by an involucre.

- Peduncles several-flowered; leaves mostly simple, triangular  
*C. triangulata* (Leavenw.) Gray.
- Peduncles 1-flowered; leaves lobed, divided or dissected.  
 Annual; stem simple, erect; leaves 5-lobed or divided; lateral  
     walls of carpel very thin ..... *C. scabriuscula* Robinson.
- Perennial from a thickened, often tuberous tap-root; lateral  
     walls of carpel firm.  
 Primary divisions of the leaves mostly entire; pubescence  
     generally appressed ..... *C. Papaver* (Cav.) Gray.
- Primary divisions of the leaves toothed to dissected;  
     pubescence in part spreading.  
 Leaves divided nearly to the base, the segments lance-  
     olate to linear; plant procumbent ..... *C. involucrata* (T. & G.) Gray.
- Leaves lobed, the segments broader; plant erect or  
     ascending ..... *C. involucrata* var. *Bushii* (Fernald) Martin.

Calyx not subtended by an involucre.

- Perennial from a thickened tap-root; carpels rugose-reticulate  
     on the back.  
 Calyx and carpels (at least on top) plainly strigose-pubescent  
     *C. alcaeoides* (Michx.) Gray.
- Calyx and carpels glabrous or essentially so ..... *C. digitata* Nutt.
- Annual; carpels nearly smooth on the back ..... *C. leiocarpa* Martin.  
     (*C. pedata* Gray, p. p., not *Nuttallia pedata* Nutt. ex Hook.)

#### DIVISION OF PLANT EXPLORATION AND INTRODUCTION,

Bureau of Plant Industry, Washington.

ANOTHER NEW HAMPSHIRE STATION FOR RHODODENDRON MAXIMUM.—On July 16, 1928, accompanied by my wife and Mrs. T. L. Storer as guide, I visited a native colony of *Rhododendron maximum* L. at Adams Pond in the extreme southwest corner of Strafford, New Hampshire. It has long been known to some of the farmers of the vicinity, but apparently never before reported in this journal nor represented by a specimen in the Herbarium of the New England Botanical Club.

The colony consists of many seedlings and numerous older plants, reaching a maximum height of 3–4 meters. They may be found scattered along the southeast shore for a distance of about 200 meters. Judging from the town boundaries, as plotted on the U. S. Geological Survey map, some of the plants are in Strafford, but the main colony is in Pittsfield. Although easily accessible, there was little or no evidence of destruction by thoughtless gardeners. A few late blooms were still persisting at the time of our visit.—R. J. EATON, Cambridge, Mass.

## NOTES ON SOME MAINE PLANTS

ANNE E. PERKINS

*Ophioglossum vulgatum* L. Well distributed on the main land, at least south of the 45° of latitude, is common about Penobscot Bay. I have collected it on Spectacle Island of the town of Brooksville; on Eagle, Pond and Hog Islands in the town of Deer Isle. It has been collected on Deer Isle, and on North Haven by A. H. Norton. I have also collected it at Lee, Penobscot County.

*Lophotocarpus calycinus* var. *spongiosus* (Engelm.) Fassett. York, abundant on muddy shores of Smelt Creek, where noticed by Oliver Neal, Jr., July, 1936.

*Bromus Kalmii* Gray. Collected in Baldwin, Cumberland County, July 28, 1933.

Except Weatherby's locality in Oxford (RHODORA, 17: 71) the species seems unrecorded from this state.

*Hemicarpha micrantha* (Vahl) Britton. A good station on the shore of Province Lake, Parsonsfield.

*Hypoxis hirsuta* (L.) Coville. Noticed by Oliver Neal by a roadside in South Berwick (Emery's Bridge) in June, 1936. There were four blooming plants. A specimen is in the Portland Nat. Hist. Museum.

*Sisyrinchium mucronatum* Michx. Flowering freely in a small area, in Wells, June, 1937 (Norton, Perkins and Haven).

It was previously known in Maine only from Winn (1935, RHODORA 37: 75). During the meeting of the Josselyn Botanical Society in 1937, it was found to be the common blue-eyed grass in the towns of Lee and Springfield, Penobscot County, in the region of Winn, growing abundantly in sandy fields and roadsides.

*Arenaria peploides* var. *robusta* Fernald. Known from Wells for half a century; found to be still flourishing at Drake's Island, Wells, in July, 1936.

*Benzoin aestivale* (L.) Nees. Found by the Saco River in Hollis, at the eastern boundary of York County, June 15, 1938.

It has not, I believe, been previously found east of North Berwick, about 25 miles to the southeastward. About 45 years ago J. C. Parlin found it in North Berwick (station lost) and in July, 1934, I found it abundantly in Eliot.

*Baptisia tinctoria* (L.) R. Br. At the meeting of the Josselyn Botanical Society in 1936 this was found in considerable quantity at the eastern slope of Yeaton Hill, by the roadside west of Shaker Pond, Alfred. It was also found on the east side of that Pond, on Shaker Hill, on grounds now occupied by the Notre Dame Institute.

*ZANTHOXYLUM AMERICANUM* Mill. Plentifully scattered through the grounds of the Shaker settlement at Shaker Hill, Alfred, now occupied by Notre Dame Institute.

Shakers settled at this place as early as 1782, and it is probable that the plant was introduced by these herbalists at an early date. The eminent Dr. George L. Goodale, a native of York County, during his preparatory years served as "an Apothecaries, assistant, and acquired a good knowledge of the pharmacy of that day." With every opportunity to become familiar with the medicinal plants of the Shaker vendors, he entered this species in his catalogue of Maine Plants in 1862, without comment. It was carried forward by Dr. Fernald in his Catalogue of 1892, though in his supplement to that catalogue in 1895 he removed it to his list of species having no known station in the state, and here it has remained until the present.

*EUPHORBIA COROLLATA* L. On August 7, 1938 I found a lusty clump of this species in York in a pasture by an obscure road east of Mount Agamenticus. It was far from any occupied dwelling.

*EMPETRUM NIGRUM* L. This boreal plant, now known to occur westerly along the headlands and outer Islands of the Maine coast to Casco Bay, I am now able to record from stations well up into Penobscot Bay: Eagle Island, freely; Pickering's Island, abundantly; and on Beach Island.

*LILAEOPSIS LINEATA* (Michx.) Greene. In great abundance on the shores of the estuary at South Berwick; 1936.

*CORNUS FLORIDA* L. Through a casual remark of a forest ranger, I have had the great satisfaction of collecting the flowering dogwood from two small stations on Mount Agamenticus in the town of York in 1936 and 1937.

This species was entered without comment in Dr. Goodale's catalogue of 1862, and has been considered an element of the Maine flora since. Prof. Fay Hyland, in his search for woody plants, has been unable to locate a preserved specimen or to find a station, hence the discovery of the plant is very gratifying.

*PENSTEMON PALLIDUS* Small. This plant, which I have known to occur in Wells and South Berwick for fifty years, has spread quite widely during that period, now being established in Eliot, Berwick, South Berwick, Wells, North Berwick and Sanford.

*PENSTEMON DIGITALIS* Sweet. Apparently established on Butter Island, Penobscot Bay, where I found about a dozen plants in 1936 and again 1937.

*VERONICA AGRESTIS* L. I found a sizable and vigorous colony of this speedwell at Castine in 1936.

CONOPHOLIS AMERICANA (L. f.) Wallr. A small colony found in the vicinity of Ross Corner, Shapleigh by Oliver Neal, Jr. in July, 1937.

It was previously known in York County from Parsonsfield (1902, RHODORA 4: 169).

BIDENS BECKII Torr. In Masabeesic Lake ("Shaker Pond"), Alfred, dense mats obstructing the passage of our boat, 1936.

BERWICK, MAINE

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NOMENCLATURE AT THE NEXT INTERNATIONAL CONGRESS.—On behalf of the VIIth International Botanical Congress I ask you to insert the following notice in the next number of your periodical:

Motions dealing with Nomenclature for consideration by the VIIth International Botanical Congress, Stockholm 1940, should be sent before July 1, 1939, to the *Rapporteur général*, Dr. T. A. SPRAGUE, THE HERBARIUM, ROYAL BOTANIC GARDENS, KEW, SURREY, ENGLAND.

Motions must be presented in the form of additional articles or amendments to the International Rules. They should be drafted as briefly as possible. At least 100 printed copies must be presented.—J. A. NANNFELDT, *Recorder*, Section for Taxonomy and Nomenclature, Botaniska Institutionen, Uppsala, Sweden.

Volume 40, no. 478, including pages 361-424 and plates 508-520, was issued  
15 October, 1938.

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